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Part 4 Input Methodologies Review 2023

Process and Issues paper

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Commerce Commission
New Zealand

Foreword

The input methodologies (**IMs**) are the rules, requirements and processes the Commission sets for services that are regulated under Part 4 of the Commerce Act – electricity networks, gas networks and airports. The IMs specify how other Part 4 regulations, like price-quality regulation, apply. IMs are integral to the regulatory regime in Aotearoa New Zealand and play a key role in providing for stable and predictable regulation and providing regulated industries with certainty.

We are required to review the IMs at least every seven years and the current IM Review began in February of this year. The IM Review offers an important opportunity to work with industry, consumers, and other government agencies to identify issues, risks and opportunities in the energy and airports sectors and to understand the role that our regulatory settings can play in helping regulated entities deliver the right outcomes for Aotearoa New Zealand.

We now have more than a decade's experience with setting, implementing, reviewing, and amending IMs under the Part 4 regime. However, this IM Review occurs during a period of change for the energy and airport sectors, particularly in relation to the impact of climate change, the transition to a low carbon economy, and the ongoing impact of COVID-19. Changes to consumer preferences, technology, and government policy are also expected to affect these sectors in the short to medium term. While, from our perspective, most aspects of the IMs are working well, there may be scope for some elements to be improved. The IMs may need to enable more flexibility to help keep up with the pace of change.

Thank you to those of you that submitted on our April 2021 open letter on our regulatory priorities, and who attended and submitted on our December 2021 workshop on the impact of decarbonisation on electricity lines services. This paper is the next step following those engagements in developing our understanding of potential issues with the IMs.

The focus of this phase of the IM Review is on identifying the key topics, and issues relating to those topics, that the IM Review should address, and identifying whether and how potential changes to the IMs might address them. Your input is vital to shaping the issues and, ultimately, the IM Review.

We strongly encourage you to focus on the connection between the issues and specific IMs and to use the draft IM Review framework we have published alongside this paper – particularly the statutory purposes of Part 4 and the IMs – to show why the IM Review should prioritise each issue and how we may go about addressing it. This will assist us in refining our understanding of the precise issue and whether changes to the IMs are the best solution, ensuring our work remains focused on issues that the IMs are the appropriate tool for addressing.

There may also be issues that you are aware of, and would like to see addressed in the review, but on which we have presented limited or no information in this paper. We welcome input from you to identify these issues and to help define how they relate to the IMs.

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Executive summary

Purpose of this paper

X1 This paper seeks your input in identifying the key topics and defining the specific problems to be addressed by our review of the IMs.

IMs are the upfront rules, processes and requirements of regulation

X2 IMs are the upfront rules, processes and requirements of regulation. IMs under Part 4 of the Commerce Act currently apply to:

X2.1 All suppliers of electricity lines services, gas pipeline services and specified airport services subject to information disclosure regulation; and

X2.2 All suppliers of gas pipeline services, Transpower and 16 suppliers of electricity distribution services subject to price-quality regulation.

X3 The purpose of IMs, set out in s 52R of the Commerce Act 1986 (**the Act**), is to promote certainty for suppliers and consumers in relation to the rules, requirements and processes applying to regulation.

X4 The original IMs were determined on 22 December 2010. We substantially completed the first IM review in December 2016 (**2016 IM review**), although we deferred decisions on certain areas of the 2016 IM review to 2017.

Reviewing the IMs

X5 The energy and airport sectors are in a period of change, particularly in relation to the impacts of climate change, the transition to a low carbon climate-resilient economy, and the ongoing impact of COVID-19. Further changes in technology, government policy and consumer preferences are also expected to impact these sectors in the short to medium term.

X6 As the external environment in which these sectors operate changes, it is important that the IMs ensure that suppliers of regulated goods and services have incentives to invest and innovate to maintain reliable services, while responding to changing consumer preferences, technology, and other environmental factors, including climate change, consistent with outcomes in competitive markets.

X7 Section 52Y of the Act requires us to review each IM no later than seven years after its date of publication. On 23 February 2022, we issued a notice of intention to commence this review of all IMs.[1]

[1] Commerce Commission "Notice of Intention – Input Methodologies Review 2023" (23 February 2022).

X8 The notice of intention sets out the process to be followed and timeframes for the IM Review. We will review each IM against the IM review framework,[2] which is published in draft alongside this paper.

X9 The IM review framework will guide us in reaching decisions on the IM Review. The IM review framework we propose to use is substantially the same as the framework we developed and applied for the 2016 IM review, with some changes discussed in that paper. We seek your views on that paper alongside this one. The submission timeline for the draft IM review framework paper is the same as for this paper.

Intention for this phase of the IM Review

X10 The focus of this phase of the IM Review is on identifying the key topics, issues, risks and opportunities that the IM Review should address.

X11 This paper sets out the key topics that have been identified to date for the IM Review and briefly explains our understanding of each, along with an overview of our proposed effectiveness review. Our intention is to convey to you:

X11.1 our existing level of understanding about each of the topic areas and highlight where we need the most input from you to help shape each topic; and

X11.2 the scope of our effectiveness review.

X12 Feedback on this paper is intended to inform the development of our draft decisions, or of any emerging views papers published, or workshops held, in advance of our draft decisions. You may identify further topics and related potential issues outside of the topic areas which you consider should be addressed in the IM Review and we would encourage you to include these in your submissions on this paper for consideration as part of our effectiveness review. We may decide to review any additional policy issues identified in the course of our effectiveness review as specific topic areas, in which case we will advise this as part of a process update.

[2] Commerce Commission "2023 input methodologies review" webpage, scroll down to "Draft framework paper" (20 May 2022).

The issues should drive the process for the IM Review

X13 The publication of this process and issues paper and the draft IM review framework mark the formal beginning of our problem definition phase. We consider that this IM Review will be most effective and efficient if we begin by identifying and defining relevant issues clearly and letting this inform the process we then follow. We seek to adopt a process and sequence for the IM Review that properly addresses the issues and our review requirements, while managing costs and time commitments for all parties.

X14 We expect that the further development of the process and sequence for the IM Review will be influenced by the number, size, and interdependencies of the issues to be addressed. Submissions on this paper will be important in shaping the process for the remainder of the IM Review.

The topics in this paper

X15 The topic areas we have identified to date are:

- X15.1 Risk allocation and incentives under price-quality regulation.
- X15.2 Issues relating to the cost of capital.
- X15.3 CPPs and in-period adjustments to price-quality paths.
- X15.4 Transpower investment.

X16 We have developed this list of topics following consideration of submissions on our April 2021 open letter and the discussion in our December 2021 decarbonisation workshop.[3] We have also considered issues raised by stakeholders outside of this engagement and issues we have identified internally since the 2016 IM review. We may consider whether some issues are more appropriately addressed in price paths or information disclosure rather than IMs.

X17 We are at different stages of thinking for different topics. Our level of understanding for each topic is based on the amount of work we have previously done in that area and on stakeholders' submissions on our previous work; it is not necessarily an indication of relative importance or priority.

X18 We will also conduct a broad assessment of the effectiveness of all IMs to the extent they are not covered by other topic areas, as explained in Chapter 9.

[3] Commerce Commission "Open letter—ensuring our energy and airports regulation is fit for purpose" (29 April 2021) *and* Commerce Commission "Workshop on the impact of decarbonisation on electricity lines services 7 December 2021 - Summary of stakeholder views" (1 February 2022).

Table 1: Key topics for the IM Review

Chapter	Topic	Sub-topics
5	Risk allocation and incentives under price-quality regulation	• Outcomes and issues in the market for electricity lines services • Outcomes and issues in the market for gas pipeline services • Incentive mechanisms to improve efficiency for EDBs and Transpower • Form of control (short-term demand risk) • Longer-term demand risk • RAB indexation and inflation forecasting
6	Issues relating to the cost of capital	• The impact of COVID-19 on financial markets • Asset beta • Issues related to the tax adjusted market risk premium (TAMRP) • Adjusting the IMs to allow for a four-year regulatory period • Split cost of capital • Cost of debt issues • Credit rating for airports • Reconsidering the weighted average cost of capital (WACC) percentile for electricity and gas business
7	CPPs and in-period adjustments to price-quality paths	• Key issues in this chapter • What is the topic area? • What issues have been raised on this topic for consumers and suppliers? • Have we previously looked at this topic or these issues? • Is there other experience that could help deal with these issues? • What further information is needed to advance our thinking?
8	Transpower investment	• Dealing with uncertainty • Impact of increasing transmission connection enquiries to support decarbonisation • First mover issue • Trade-offs between transmission reliability and the level of investment • The investment test for major capex in the Capex IM • Whether the rules allow sufficient flexibility for Transpower • Timing of review of the Capex IM
9	Effectiveness of the IMs for each sector	• What is the topic area? • What issues have been raised on this topic area? • Have we previously looked at this topic or these issues? • What further information is needed to advance our thinking?

Next steps

X19 After considering submissions (and cross submissions) on this paper against our draft IM review framework, we expect to have a clearer picture of the specific issues to consider in the IM Review. This will put us in a good position to further reconsider and refine the process for the next phase of the IM Review. We will update interested parties on any process changes we determine.

Glossary

Acronyms	Definition
the Act	Commerce Act 1986
AER	Australian Energy Regulator
AMP	Asset Management Plan
BAU	Business-as-usual
BBM	Building block model
Capex	Capital expenditure
CEG	Competition Economics Group
CMA	Competition & Markets Authority
CPI	Consumer Price Index
CPP	Customised Price-quality Path
CPRG	Constant Price Revenue Growth
DER	Distributed Energy Resources
DPP	Default Price-quality Path
DSO	Distribution System Operator
EDB	Electricity Distribution Business
ELB	Electricity Lines Business
ELS	Electricity Lines Service
Electricity lines service(s)	Conveyance of electricity by line in New Zealand; and with respect to services performed by Transpower, includes services performed as system operator (see s 54C of the Act for more detail)
E&D	Enhancements and Development
FCM	Financial Capital Maintenance
Fibre IMs	Fibre IMs set under Part 6 of the Telecommunications Act 2001
GAAP	Generally Accepted Accounting Practice
Gas IMs	Input Methodologies for gas pipeline services
GDB	Gas Distribution Business
GPB	Gas Pipeline Business
GPS	Gas Pipeline Service
Gas pipeline service(s)	Conveyance of natural gas by pipeline, including the assumption of responsibility for losses of natural gas (see s 55A of the Act for more detail)
GTB	Gas Transmission Business
ID	Information Disclosure
IMs	Input Methodologies (refers to Part 4 IMs which are the subject of the IM Review, unless identified otherwise)
IPP	Individual Price-quality Path
IRIS	Incremental Rolling Incentive Scheme

MAR	Maximum Allowable Revenue
MCP	Major Capex Project
MEUG	Major Electricity Users Group
Ofgem	The Office of Gas and Electricity Markets
Opex	Operating expenditure
Part 4	Part 4 of the Commerce Act 1986
PQ	Price-quality
RAB	Regulated Asset Base
RBNZ	Reserve Bank of New Zealand
TAMRP	Tax-adjusted Market Risk Premium
TCFD	Task Force on Climate-Related Financial Disclosures
TCSD	Term Credit Spread Differential
Totex	Totex regimes (Total expenditure rather than separately determining capex and opex)
TPM	Transmission Pricing Methodology
UK CAA	UK Civil Aviation Authority
UKRN	United Kingdom Regulators Network
WACC	Weighted Average Cost of Capital
WAPC	Weighted-Average Price Cap

Chapter 1 Introduction

Purpose of this paper

1.1 On 23 February 2022, we commenced our statutory review of the input methodologies (**IMs**) applying to electricity lines services, gas pipeline services, and specified airport services (**IM Review**), as required under Part 4 of the Commerce Act 1986 (**the Act**).[4]

1.2 This paper:

1.2.1 sets out the key topics for the IM Review that we have identified to date as well as detail on the process by which we intend to complete the review;

1.2.2 identifies potential issues relating to each key topic that we propose to consider in the IM Review; and

1.2.3 invites feedback on the above matters.

1.3 Alongside this paper, we have published our draft IM review framework paper, which sets out our proposed decision-making framework for the IM Review. We invite feedback on that paper, also.

1.4 In providing feedback to us on this paper, it would be helpful for stakeholders to:

1.4.1 identify any further topics and related potential issues to consider in the review;

1.4.2 identify any IMs relevant to those topics and issues;

1.4.3 describe how considering and addressing each potential issue would meet one or more of our three overarching objectives for the IM Review from our draft IM review framework published alongside this paper;[5] and

1.4.4 outline what additional process steps or timing may be helpful in understanding these issues and progressing the review.

1.5 In identifying any further topics and related potential issues for us to consider, we request that submitters use our draft IM review framework paper, and particularly the s 52A purpose of Part 4 and s 52R IMs purpose, to show why the IM Review should cover the further topics and related potential issues.

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[4] Commerce Commission "Notice of Intention –Input Methodologies Review 2023" (23 February 2022).

[5] See Commerce Commission "2023 input methodologies review" webpage, scroll down to "Draft framework paper" (20 May 2022). In identifying which IMs to consider changing, and in reaching decisions on changing IMs, we will be guided by three overarching objectives in the IM Review:

- promoting the Part 4 purpose in section 52A of the Commerce Act 1986 (**Act**) more effectively;
- promoting the IM purpose in section 52R more effectively (without detrimentally affecting the promotion of the section 52A purpose); and
- significantly reducing compliance costs, other regulatory costs or complexity (without detrimentally affecting the promotion of the section 52A purpose).

1.6 This paper focuses on the key issues that have been identified to date as requiring consideration in the IM Review.

Structure of this chapter

1.7 The remainder of this chapter is structured as follows:

1.7.1 Background to the IM Review.

1.7.2 Our obligation to review the IMs.

1.7.3 How the IMs underpin the Part 4 regime.

1.7.4 Intention for this phase of the review.

1.7.5 The process for this phase of the review.

1.7.6 How you can make a submission.

1.7.7 The structure of the remainder of this paper.

Background to the IM Review

1.8 IMs are the upfront rules, processes and requirements of regulation. IMs currently apply to:

1.8.1 all suppliers of electricity lines services, gas pipeline services and specified airport services subject to information disclosure regulation; and

1.8.2 all suppliers of gas pipeline services, Transpower and 16 suppliers of electricity distribution services that are subject to price-quality regulation.

1.9 The purpose of IMs, set out in s 52R of the Act, is to promote certainty for suppliers and consumers in relation to the rules, requirements and processes applying to regulation. Promoting the s 52R purpose – provided it does not detrimentally affect the promotion of the s 52A purpose of Part 4 – is one of three overarching objectives of the IM Review.[6] Section 52A governs all our decision-making processes under Part 4,[7] including our IM decisions. The other purpose statements

[6] As per footnote 2.

[7] Section 52A of the Act: The purpose of this Part is to promote the long-term benefit of consumers in markets referred to in Section 52 by promoting outcomes that are consistent with outcomes produced in competitive markets such that suppliers of regulated goods or services—

a) have incentives to innovate and to invest, including in replacement, upgraded, and new assets; and

b) have incentives to improve efficiency and provide services at a quality that reflects consumer demands; and

c) share with consumers the benefits of efficiency gains in the supply of the regulated goods or services, including through lower prices; and

d) are limited in their ability to extract excessive profits.

within Part 4 are relevant matters, but they should be applied consistently with section 52A.[8]

1.10 The original IMs were determined on 22 December 2010 under s 52T of the Act. Transpower's capital expenditure input methodology (**Capex IM**) was determined on 31 January 2012 under s 54S of the Act.

1.11 We substantially completed the first IM review in December 2016 (**2016 IM review**). We deferred decisions on certain areas of the 2016 IM review to 2017 – specifically, on the Transpower Incremental Rolling Incentive Scheme (**IRIS**) to June 2017, on the customised price-quality path (**CPP**) information requirements for gas to December 2017, and on the related party transaction provisions for electricity distribution businesses (**EDBs**) and gas distribution/transmission businesses to December 2017. We also completed our review of the Transpower Capex IM in May 2018.

Our obligation to review the IMs

1.12 Section 52Y(1) of the Act requires us to review each IM no later than 7 years after its date of publication, and after that, at intervals of no more than 7 years. This includes both fundamental and non-fundamental IMs. We consider this requires us to review the policy and implementation of each IM.

1.13 We issued a notice of intention to commence the IM Review on 23 February 2022.[9]

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8 *Unison v ComCom*, [2007] NZSC 74, [2008] 1 NZLR 42, p. 50-53. We note too that the High Court in *Wellington International Airport Ltd & others v Commerce Commission* [2013] NZHC 3289, p. 165, considered that the purpose of IMs, set out in section 52R of the Act, is "conceptually subordinate" to the purpose of Part 4 as set out in section 52A when applying the "materially better" test.

9 Commerce Commission "Notice of Intention – Input Methodologies Review 2023" (23 February 2022).

1.14 The IMs which are subject to the IM Review are:

1.14.1 airport services IMs;[10]

1.14.2 electricity distribution services IMs;[11]

1.14.3 gas transmission services IMs;[12]

1.14.4 gas distribution services IMs;[13]

1.14.5 Transpower IMs;[14] and

1.14.6 the Transpower Capex IM.[15]

1.15 Table 2 shows which IMs are applicable to each class of regulated supplier, and whether they are subject to price-quality regulation or solely information disclosure requirements.

Table 2: Applicable IMs

IMs	EDBs exempt[16]	EDBs non-exempt	Transpower	Gas Pipelines	Airports
Cost of Capital Asset valuation Cost allocation Tax	ID	ID/PQ	ID/PQ	ID/PQ	ID
Specification / definition of prices Reconsideration of price-quality paths	-	PQ	PQ	PQ	-
IRIS	-	PQ	PQ	-	-
CPP provisions	-	PQ	-	PQ	-
Transpower Capex IM	-	-	PQ	-	-
Pricing methodologies	-	-	-	ID/(PQ)	-

[10] *Commerce Act (Specified Airport Services Input Methodologies) Determination 2010*, consolidating all amendments to 20 December 2016.

[11] *Electricity Distribution Services Input Methodologies Determination 2012* [2012] NZCC 26, consolidating all amendments to 20 May 2020.

[12] *Gas Transmission Services Input Methodologies Determination 2012* [2012] NZCC 28, consolidating all amendments to 3 April 2018.

[13] *Gas Distribution Services Input Methodologies Determination 2012* [2012] NZCC 27, consolidating all amendments to 3 April 2018.

[14] *Commerce Act (Transpower Input Methodologies) Determination 2010* [2012] NZCC 17, consolidating all amendments to 29 January 2020.

[15] *Transpower Capital Expenditure Input Methodology Determination* [2012] NZCC 2, consolidating all amendments to 29 January 2020.

[16] Exempt refers to EDBs that meet the criteria in the Commerce Act to be considered as 'consumer-owned' and are therefore exempt from price-quality regulation.

1.16 The IM Review will also cover any IM amendments made since the 2016 IM review. This includes any IM amendments made in 2022 in conjunction with the gas pipeline services default price-quality path (**DPP**) resets (**Gas DPP3**). The most recent consolidated versions of the IMs are published on our website.[17]

1.17 The Fibre IMs set under Part 6 of the Telecommunications Act (**Fibre IMs**) are not in scope for the IM Review. However, we will take into account lessons learned from setting the Fibre IMs where relevant to the Part 4 context. Similarly, we expect the statutory review of the Fibre IMs will consider lessons learned from this IM Review, where relevant to that statutory context.

How the IMs underpin the Part 4 regime

1.18 Part 4 provides for four types of regulation: ID regulation;[18] negotiate/arbitrate regulation;[19] DPP/CPP regulation;[20] and IPP regulation.[21]

1.19 How these various types of regulation are to be applied is determined by decisions we make under section 52P. Section 52P(3) provides that a section 52P determination must:

a) set out, for each type of regulation to which the goods or services are subject, the requirements that apply to each regulated supplier; and

b) set out any time frames (including the regulatory periods) that must be met or that apply; and

c) specify the input methodologies that apply; and

d) be consistent with [Part 4].

1.20 We have made section 52P determinations relating to all suppliers regulated under Part 4:

1.20.1 All suppliers of electricity lines services, gas pipeline services and the specified airports are subject to ID regulation.

1.20.2 All suppliers of gas pipeline services, Transpower and 16 EDBs are subject to price-quality (PQ) regulation. For all suppliers of gas pipeline services and 14 suppliers of electricity lines services, that regulation is currently a DPP. Aurora Energy Limited and Powerco Limited are each currently on a CPP. Transpower is subject to an IPP.

1.21 ID regulation requires a supplier of a regulated service to disclose information we specify, relating to prices and quality of the regulated service, to ensure sufficient

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17 Commerce Commission "Input methodologies" webpage.

18 Subpart 4 of Part 4 of the Act.

19 Subpart 5 of Part 4. Negotiate/arbitrate regulation does not currently apply to any regulated supplier.

20 Subpart 6 of Part 4.

21 Subpart 7 of Part 4.

information is readily available to interested persons to assess whether the section 52A purpose is being met.[22] ID regulation is 'sunshine regulation', and the disclosure of information is intended to exert pressure on suppliers to move their prices and quality closer to ones which would promote the outcomes in section 52A(1)(a)-(d) of the Part 4 purpose.

1.22 DPP/CPP and IPP regulation requires a supplier to comply with a PQ path we determine which specifies either, or both, the maximum revenue or weighted average prices that a supplier may charge and recover, and the quality standards that must be met.[23]

1.23 We use a CPI minus X PQ path for DPP/CPP regulation which allows a supplier to increase —or requires it to decrease— its revenue (or weighted average prices) over the regulatory period by the CPI minus an X factor that reflects our assessment of anticipated productivity gains over the regulatory period. In some circumstances, the X factor can also be used as a revenue smoothing mechanism. Suppliers who improve their efficiency at a rate greater than expected make profitability gains. The quality aspect of a PQ path ensures that efficiency gains do not come at the expense of the regulated service meeting minimum quality standards, thereby promoting the outcomes under section 52A(1)(b) and (c) of the Part 4 purpose.

1.24 The purpose of DPP/CPP regulation, as set out in section 53K of the Act, is "to provide a relatively low-cost way of setting PQ paths for suppliers of regulated goods or services, while allowing the opportunity for individual regulated suppliers to have alternative PQ paths that better meet their particular circumstances."

1.25 Given the intention that DPP regulation be relatively low-cost, a DPP largely uses generic approaches with business-specific inputs. We must apply the IMs and comply with the section 53P requirements for setting starting prices, rates of change and quality standards.[24]

1.26 CPP regulation is tailored to an individual supplier's particular circumstances, which may not be adequately catered for under the relevant DPP.[25] We may set any CPP we consider appropriate,[26] but we must apply the relevant IMs we have set for the supply of those services. The requirements for DPPs under section 53P do not apply.

1.27 An overview of DPP/CPP regulation, and the key statutory characteristics of DPPs and CPPs, are described in Figure 1.1 and Table 2.1 of Topic Paper 2 of the 2016 IM

[22] Section 53A of the Act.

[23] Section 53M.

[24] Sections 53O and 53P of the Act.

[25] Section 53K.

[26] Section 53V.

Review, which also sets out how DPPs and CPPs work together.[27] That figure and table are reproduced below as Figure 1.1 and Table 3.

Figure 1.1: Overview of the components of the default customised price-quality regime

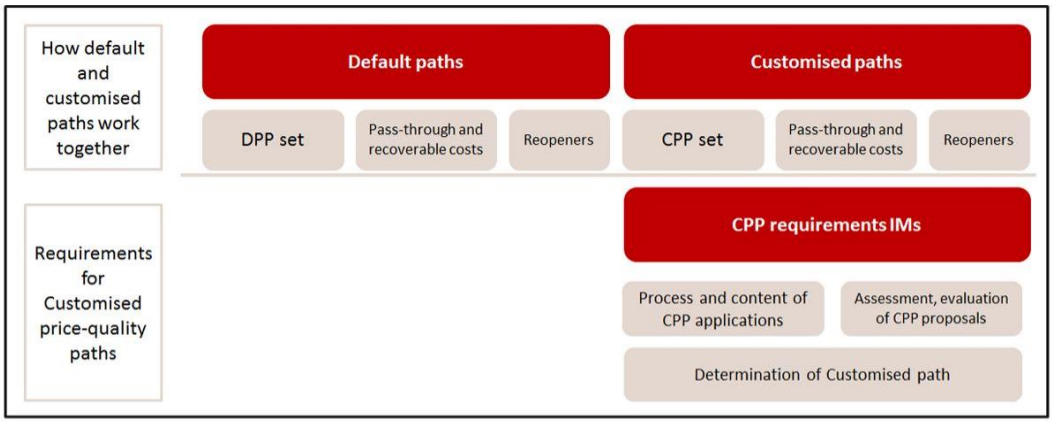

Table 3: Key statutory characteristics of DPPs and CPPS

DPP (as set)	DPP pass-through / recoverable costs	DPP reopener (reconsideration)	CPP (as set)	CPP pass-through / recoverable costs	CPP reopener (reconsideration)
• Relatively low-cost. • Commerce Commission (**CC**) bears the cost of determination (passed on to industry through general levies). • Section 53P limitations on how the CC sets a DPP – eg, restriction on benchmarking. • IMs must specify key inputs, eg, asset valuation, cost of capital. • 4-5 year regulatory period.	• Costs that can be passed through to prices must be specified in the IMs.	• Circumstances in which DPPs can be reconsidered within a regulatory period must be specified in the IMs. • Only affects path for the remainder of the DPP period. • Should generally accommodate issues affecting multiple suppliers (4+) that arise after the DPP is set (per High Court in Wellington International Airport Ltd & Ors v CC). • Potentially supplier, CC, or consumer initiated. • We bear the cost of reconsidering the DPP (passed onto industry through levies).	• IMs must set out relevant scrutiny requirements and key inputs. • New regulatory period can be 3-5 years. • Only suppliers can apply and only once during a DPP period. • Cannot withdraw CPP proposal once submitted. • CC can agree with supplier on IM variations. • Applicant bears the cost of Commission determining CPP, and once set, Commission reconsidering CPP. • CPP can extend across two DPP periods.	• Costs that can be passed through to prices must be specified in the IMs.	• Circumstances in which CPPs can be reconsidered within a regulatory period must be specified in the IMs. • Changes will only affect path for the remainder of the CPP period. • Potentially supplier, CC, or consumer initiated.

[27] Commerce Commission "Input methodologies review decisions - Topic paper 2: CPP requirements" (20 December 2016).

1.28 IPP regulation is similar to CPP regulation in focussing on the particular circumstances of an individual supplier. Only Transpower is currently subject to an IPP. We may set an IPP using any process, and in any way, we consider fit, but we must apply relevant IMs.[28]

1.29 The regulatory period of a DPP, CPP or IPP is generally five years. Although, where we consider it would better meet the purposes of Part 4, we can set a DPP or IPP from four to five years, and a CPP from three to five years.[29]

Intention for this phase of the IM Review

1.30 It is important for stakeholders to have a key role in helping us to define and prioritise the topics, issues, risks and opportunities to be addressed by the IM Review. Everyone should have the opportunity to have their say and we recognise that suppliers, consumers and other parties have unique viewpoints and are often better placed than we are to provide insights.

1.31 We consider that this IM Review will be most effective and efficient if we begin by identifying and defining the issues clearly and letting this inform the process we follow. We seek to adopt a process and sequence for the IM Review that properly addresses the issues and our review requirements, while managing costs and time commitments for all parties.

1.32 We expect that the further development of the process and sequence for the IM Review will be influenced by the number, size, and interdependencies of the issues to be addressed. This means it is difficult to further refine the process for the IM Review until we have a better understanding of the topic areas and specific issues to be considered.

1.33 The focus of this phase of the IM Review is therefore on identifying the key topics and the issues, risks and opportunities relating to those topics that the IM Review should address.

1.34 We strongly encourage submitters to focus on the connection between the issues and specific IMs, and use the draft IM review framework we have published alongside this paper to show why the IM Review should prioritise and address each issue. This will assist us in refining our understanding of the precise issue, prioritising it, and ensuring our work remains focussed on issues that the IMs are the appropriate tool for addressing.

1.35 While our focus for this phase of the review is on identifying which IMs to consider changing in response to identified issues, we also welcome submissions in response to this paper on potential high-level changes to the IMs to inform the next phase of

[28] Section 53ZC.

[29] Sections 53M(4)-(5), 53W and 53ZC.

our work. This is especially where proposed changes are linked to a clearly articulated issue and are supported using the draft IM review framework.

The process for this phase of the IM Review

1.36 Table 4 sets out our process steps and timeframes for the IM Review from our notice of intention.

1.37 As outlined in Table 4, once submissions (and cross submissions) are received on this paper, we will consider them, and assess the issues raised by us and submitters against our draft IM review framework to determine their priority for further consideration in the IM Review. This will give us a clearer picture of the specific issues to consider in the IM Review and put us in a good position to reconsider and refine the process for the next phase of the IM Review, as appropriate. We will update interested parties on any process changes we determine.

1.38 We will publish draft decisions in Q1 2023 and final decisions by the end of 2023.

Table 4: Process for the IM Review

	Process steps	Proposed timeframe
1.	**Paper issued – Consultation on the decision-making framework for the IM Review**	20 May 2022
2.	**Paper issued – Consultation on the Process & Issues Paper**	20 May 2022
3.	**Submissions and cross-submissions due on the decision-making framework for the IM Review**	27 June (to be published by 6 July) and 20 July 2022
4.	**Submissions and cross-submissions due on the Process & Issues Paper**	27 June (to be published by 6 July) and 20 July 2022
5.	**Paper issued – final decision on the decision-making framework for the IM Review**	Quarter 3 2022
6.	**Papers issued – Problem definition papers by discrete issues**	Quarter 3 and Quarter 4 2022
7.	**Workshops/conference as necessary**	Quarter 3 and/or Quarter 4 2022
8.	**Submissions and cross-submissions due on the problem definition papers**	Quarter 1 2023
9.	**Papers issued – Draft Report on the IM Review and draft Topic Papers**	Quarter 1 2023
10.	**Submissions and cross-submissions due on the draft Report on the IM Review, draft Topic Papers, and draft IM amendments determinations**	Quarter 2 and Quarter 3 2023
11.	**Papers issued – Final Report on the IM Review, final Topic Papers, and final IM amendments determinations**	Quarter 4 2023

How you can make a submission

Submissions on this paper

1.39 We welcome your views on this paper by 5pm on **Monday, 27 June 2022**. We will publish public versions of submissions we receive by **Wednesday, 6 July 2022**, and invite cross-submissions on those submissions by 5pm on **Wednesday, 20 July 2022**.

Address for submissions

1.40 Please email your submissions to im.review@comcom.govt.nz with "Process and Issues/Draft Framework submission – [your submitter name]" in the subject line of your email.

1.41 You can make your submission by either:

1.41.1 completing and emailing our issues suggestion template, available on our website[30]; or

1.41.2 by emailing your submission in both a format suitable for word processing (such as a Microsoft Word document), as well as a 'locked' format (such as a PDF) for publication on our website.

1.42 It will help us if you submit your issue using the template, to ensure that we have enough information to understand and prioritise your issues. Any supporting material that you attach with the submission template should be clearly cross-referenced in the template.

Identifying and managing confidential information

1.43 The protection of confidential information is something the Commission takes seriously. To continue to protect confidential submissions, we require you to upload your submission via the form on the project page. The process requires you to provide (if necessary) both a confidential and non-confidential/public version of your submission and to clearly identify the confidential and non-confidential/public versions.

1.44 When including commercially sensitive or confidential information in your submission, we offer the following guidance:

1.44.1 Please provide a clearly labelled confidential version and public version. We intend to publish all public versions on our website.

1.44.2 The responsibility for ensuring that confidential information is not included in a public version of a submission rests entirely with the party making the submission.

[30] Commerce Commission "2023 input methodologies review" webpage (scroll down to documents)

1.45 Please note that all submissions we receive, including any parts that we do not publish, can be requested under the Official Information Act 1982. This means we would be required to release material that we do not publish unless good reason existed under the Official Information Act 1982 to withhold it. We would normally consult with the party that provided the information before any disclosure is made.

The structure of this paper

Table 5: Paper structure

Chapter	Content
1 Introduction	• Purpose of this paper • Background to the IM Review • Our obligation to review the IMs • How the IMs underpin the Part 4 regime • Intention for this phase of the IM Review • The process for this phase of the IM Review • How you can make a submission
2 Situating this paper in the review	• Context of this paper in the IM Review and the wider work programme. • Where this phase fits in – focusing the IM Review. • The record for the IM Review. • Report on the IM Review.
3 Our approach to the IM Review	• What we are trying to achieve through this paper and this phase of the IM Review. • The topics presented in this paper and how we identified them. • We want you to help us fill in the gaps and define the issues.
4 Key topics, issues and links to IMs	• Context for the IM Review. • Issues we have identified. • Issues raised by stakeholders. • How issues link to Part 4 and the IMs. • What the topic chapters will address. • What further information is needed to advance our thinking?

5 Risk allocation and incentives under price-quality regulation **6 Issues relating to the cost of capital** **7 CPPs and in-period adjustments to price-quality paths** **8 Transpower investment** **9 Effectiveness of the IMs for each sector**	For each topic we address the following (where relevant): • What is the topic area? • What issues have been raised on this topic for consumers and suppliers? • Have we previously looked at this topic or these issues? • Is there other experience that could help deal with these issues? • What IM changes could address these issues? • What further information is needed to advance our thinking?

Chapter 2 Situating this paper in the review

Purpose of this chapter

2.1 This chapter explains how this paper and phase of the IM Review fit within the review as a whole and our wider work programme.

Structure of this chapter

2.2 This chapter is structured as follows:

2.2.1 Context of this paper in the IM Review and the wider work programme.

2.2.2 Where this phase fits in – focusing the IM Review.

2.2.3 The record for the IM Review.

2.2.4 Report on the IM Review.

Context of this paper in IM Review and wider work programme

2.3 This paper is our first publication relating to the IM Review following the formal commencement of the review. The paper seeks to build upon engagement with stakeholders relevant to the IM Review to date. This includes:

2.3.1 our open letter published 29 April 2021 in which we sought views on emerging issues for electricity lines services, gas pipeline services, and specified airport services and how we should prioritise these issues when planning our work programme under the Part 4 regime.[31] Some of this information has been used to inform work on Gas DPP3 which is currently underway. The final decisions for Gas DPP3 will be published in May 2022; and

2.3.2 the workshop we held on the impact of decarbonisation on electricity lines services on 7 December 2021. We received several written submissions following the workshop and published these alongside a summary of stakeholder views.[32]

2.4 Alongside this paper we are publishing and consulting on the draft IM review framework which will guide us in reaching decisions on the IM Review. The IM review framework we propose to use is substantially the same as the framework we developed and applied for the 2016 IM review, with some changes in light of several developments and factors discussed in that paper. The submission timeline for the draft IM review framework paper is the same as for this paper.

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[31] Commerce Commission "Open letter—ensuring our energy and airports regulation is fit for purpose" (29 April 2021).

[32] Commerce Commission "Workshop on the impact of decarbonisation on electricity lines services 7 December 2021 - Summary of stakeholder views" (1 February 2022).

2.5 We have also begun a targeted information disclosure review ('**targeted ID review'**) with a process and issues paper published in March 2022.[33] The targeted ID review is focussed on potential changes to the ID requirements that apply to EDBs. This is relevant to the IM Review as issues raised by stakeholders on the IM Review may be best addressed through ID requirements.

2.6 The targeted ID review is limited in scope and intended to improve the ID requirements based on what we have learned since we first set them, to ensure they are fit for purpose in a changing environment. The following areas are within scope for the targeted ID review:

2.6.1 issues that fall under quality of service and asset management: these issues can be considered within the targeted ID review as they are not directly related to the IMs; and

2.6.2 some issues related to decarbonisation: where the issues relate to how EDBs will respond to decarbonisation, but do not directly relate to the IMs (usually because they ultimately are part of quality of service or asset management).

2.7 Certain issues that relate to ID must be considered in the context of IM changes before changes can then be made to ID requirements. We will consider such issues in the IM Review, so they will not be considered in the targeted ID review.

Where this paper fits in – focusing the IM Review

2.8 While we will review each IM against our draft IM Review framework, this paper focuses on the key issues that have been identified to date. We want to start engaging with these issues now because:

2.8.1 they are substantive and have already been identified, so we have a reasonable understanding of them;

2.8.2 we need to gather more information on them in order to understand how they affect the IMs and whether and how the IMs might be changed to address them; and/or

2.8.3 they may be relevant to multiple IMs.

2.9 This paper aims to identify issues early and develop them into problem definitions or a statement of opportunities that we can seek to address as we move through the IM Review process. The intent of this paper is to identify the topics that are likely to play a significant role in the IM Review, and to help to clearly define the specific issues within those topics as they relate to the IMs.

[33] Commerce Commission "Targeted ID Review Process and Issues Paper" (23 March 2022).

The record for the IM Review

2.10 As the first of our consultation documents on IM issues, this paper also sets out the scope of material that will be included in our IM Review record so interested parties understand what can potentially be taken into consideration in the event of an appeal under s 52Z of the Act (**IM appeal**).

2.11 We aim to be clear as to the scope of the IM Review record during the IM Review process.

2.12 Section 52ZA(2) of the Act requires that IM appeals be conducted on the basis of a closed record. That is to say, any IM appeal can only take account of material that was part of the record for the purposes of the IM Review. It is also important for interested parties to know what material is on the record so that they can provide their own views on the material in their submissions during our consultations.

2.13 We intend to adopt a cross-sector approach to the IM Review. Under this approach, all material we create as part of the IM Review process and material we receive from interested parties during the IM Review consultation and engagement processes will form part of the record for all of the IMs across different sectors, unless we specify otherwise.[34]

2.14 A cross-sector approach also means we may have regard to all relevant information and views received during the IM Review process in our final IM decisions without giving interested parties advance notice of the information and views we consider relevant to particular IMs.

2.15 We may also bring material that exists outside of the IM Review process onto the record by stating this explicitly or by referring to it in our issues and reasons papers.

2.16 Interested parties can generally also bring previously existing material or material relating to other matters onto the record by either resubmitting it or referring to it in their submissions during the IM Review process.

2.17 We currently consider that in addition to material we create or receive from interested parties during the IM Review, the following material will form part of the IM Review record:

2.17.1 all final Part 4 IMs reasons papers and Part 4 IMs we previously published, including in the original Part 4 IMs, the previous Part 4 IM Review, as well as any other Part 4 IM amendments since 2010;

2.17.2 all material referred to in any previously published Part 4 final IMs reasons papers;

[34] We may limit the scope of a particular consultation in some instances. If we do so, we may decline to have regard to material that we receive that is outside the scope of the consultation. In other instances, we could also specify that a particular issue will only be dealt with on a sector-specific basis.

2.17.3 all material referred to in any previously published Part 4 IM Determinations;

2.17.4 the responses to our open letter published on 29 April 2021;

2.17.5 the submissions received following the workshop on the impact of decarbonisation on electricity lines services on 7 December 2021;

2.17.6 material we create, and submissions and cross-submissions we receive, on IM amendments relating to Gas DPP3; and

2.17.7 material we create, and submissions and cross-submissions received, as part of the targeted ID review.

2.18 The scope of the record may broaden as the IM Review progresses. We will provide further updates should this happen.

Report on the IM Review

2.19 We published a Report on the IM Review (the Report) at the conclusion of the substantial part of the 2016 IM review.[35] Key features of the Report were:

2.19.1 the Report was structured by IM policy decisions, unlike the 2016 topic papers which were structured by problems within topic areas;

2.19.2 the Report set out our pre-review IM policy decisions in tabular format and presented our IM review decisions against them.[36] We considered that format easier to follow, and more useful, than presenting the results of the review on an IM determination or clause-by-clause basis; and

2.19.3 the Report explained the timing for when changes made as a result of the 2016 IM review would come into effect.

2.20 We will publish a report at the conclusion of the IM Review, and intend to adopt the same format as above, subject to submissions regarding the usefulness and structure of the Report.

2.21 We invite submissions on the usefulness and structure of the 2016 Report on the IM Review, and our proposal to publish a report using the same format at the conclusion of the IM Review.

[35] Commerce Commission "Input methodologies review decisions - Report on the IM review" (20 December 2016).

[36] As discussed in the 2016 Report, we derived the pre-review policy decisions from our previous IM reasons papers. Pre-review IM decisions were given effect through IM determinations published prior to 20 December 2016.

Chapter 3 Our approach to the IM Review

Purpose of this chapter

3.1 This chapter explains our aims for this paper and what we are trying to achieve from this phase of the IM Review.

Structure of this chapter

3.2 This chapter is structured as follows:

3.2.1 What we are trying to achieve through this paper and this phase of the IM Review.

3.2.2 The topics presented in this paper and how we identified them.

3.3 We want you to help us fill in the gaps and define the issues.

What we are trying to achieve through this paper and this phase of the IM Review

3.4 Our draft IM review framework paper, which explains in detail the decision-making framework for the IM Review, is published alongside this paper. The draft IM review framework paper divides the IM Review into two major conceptual elements:

3.4.1 **review element**: reviewing the IMs and identifying which IMs we should consider changing and why; and

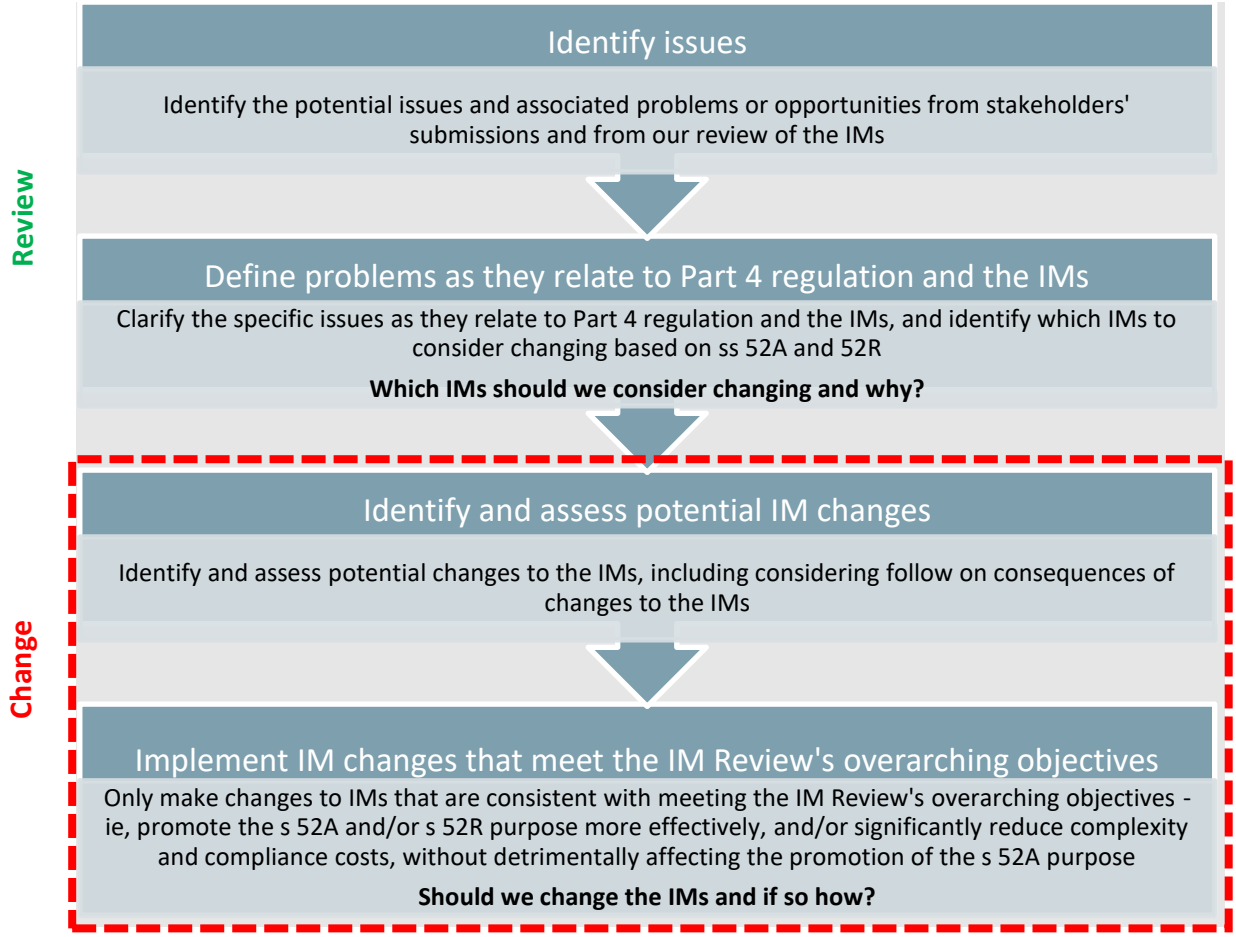
3.4.2 **change element**: deciding whether, and if so how, to change an IM following the 'review' element.

3.5 The goal of this paper is to progress the 'review' element for each topic presented in the paper (Box 2 of Figure 3.1 below). To progress the review element, we must identify issues within each topic.

3.6 This paper sets out the key topics that we have identified for the IM Review and briefly sets out our understanding of each, along with the issues we have identified to date. Our intention is to convey our existing level of understanding about each of these topic areas and highlight where we need the most input from you to help shape each topic.

3.7 Figure 3.1 below sets out the practical steps that make up the two conceptual elements of the IM Review.

Figure 3.1: Conceptual elements of the IM Review



3.8 The focus of this phase of the IM Review is on completing the first two boxes (**the review phase**) for each topic. We do, however, also welcome submissions in response to this paper on potential high-level changes to the IMs identified as part of the review phase. This is especially where proposed changes are linked to a clearly articulated issue and justified using the draft IM review framework – particularly the three overarching objectives outlined immediately below.

3.9 In identifying which IMs to consider changing, and in reaching decisions on changing IMs, we are guided by three overarching objectives. We propose to only change the IMs if this appears likely to meet one or more of these overarching objectives for the IM Review of:

3.9.1 promoting the Part 4 purpose in section 52A more effectively;

3.9.2 promoting the IM purpose in section 52R more effectively (without detrimentally affecting the promotion of the section 52A purpose); or

3.9.3 significantly reducing compliance costs, other regulatory costs or complexity (without detrimentally affecting the promotion of the section 52A purpose).

3.10 These overarching objectives are further explained in the draft IM Review framework paper.[37]

The topics presented in this paper and how we identified them

3.11 This paper presents four key topics, along with an overview of our proposed effectiveness review. The topics are:

3.11.1 Risk allocation and incentives under price-quality regulation.

3.11.2 Issues relating to the cost of capital.

3.11.3 CPPs and in-period adjustments to price-quality paths.

3.11.4 Transpower investment.

How we developed the list of topics

3.12 We have developed this list of topics following consideration of submissions on our April 2021 open letter and the discussion in our December 2021 decarbonisation workshop. We have also considered issues raised by stakeholders outside of this engagement and issues we have identified internally since the 2016 IM review. Chapter 4 explains how we have linked issues raised by stakeholders to the individual topic chapters.

Our level of understanding varies across the topics

3.13 We are at different stages of thinking for different topics. Our level of understanding for each topic is based on the amount of work we have previously done in that area and on stakeholders' submissions on our previous work; it is not necessarily an indication of relative importance or priority.

We want you to help us fill in the gaps to identify and define the issues

3.14 The input we are seeking from you on each topic varies depending on our level of understanding on that topic.

3.15 In outlining our existing level of understanding in the following topic chapters, we aim to indicate to you the types of input we are looking for by raising some specific questions and putting forward tentative propositions for comment.

3.16 We are also interested to know if you consider we have missed any topics or issues on identified topics, and if you consider we have not given sufficient prominence to an identified issue.

3.17 If you have a new topic to propose, we encourage you to consider how it fits with the existing topics. For example, consider whether it might be a sub-topic of an

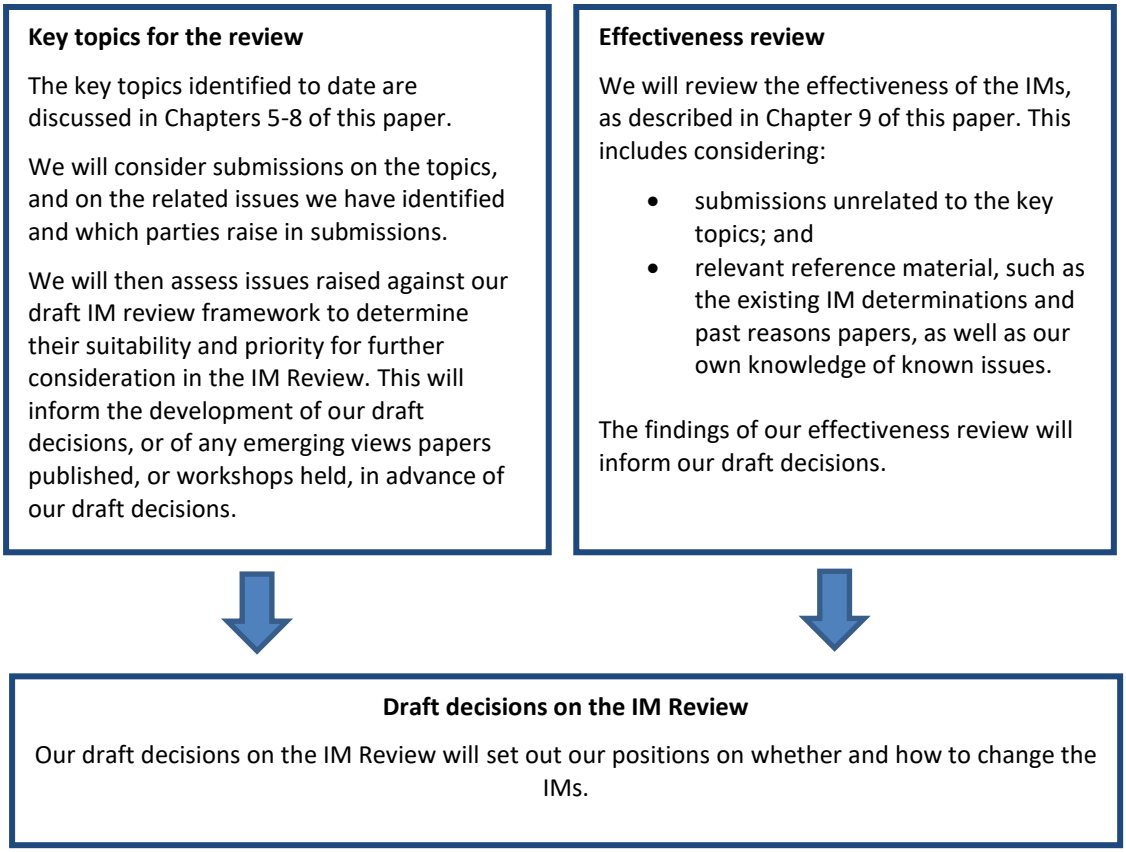
[37] Commerce Commission "2023 input methodologies review" webpage, scroll down to "Draft framework paper" (20 May 2022).

existing topic, or whether an existing topic can be broadened to include the proposed new topic.

3.18 If you have a new issue to propose on a new or existing topic, please describe how considering and addressing that issue further in the IM Review would promote the section 52A purpose of Part 4 and the section 52R IM purpose.

3.19 Figure 3.2 describes how consultation on the key topics, alongside our effectiveness review of the IMs, will support us in reaching our draft decisions.

Figure 3.2: Sources of our future draft decisions on the IM Review



Chapter 4 Key topics, issues and links to IMs

Purpose of this chapter

4.1 This chapter:

4.1.1 consolidates the broad range of externally and internally identified issues;

4.1.2 categorises the issues into themes and impacts; and

4.1.3 links the themes to specific IM provisions, and to the key topics discussed in the remaining chapters of the paper.

Structure of this chapter

4.2 The structure of this chapter is:

4.2.1 Context for the IM Review.

4.2.2 Issues raised by stakeholders.

4.2.3 Issues we have identified.

4.2.4 How issues link to Part 4 and the IMs.

4.2.5 What the topic chapters will address.

4.2.6 What further information is needed to advance our thinking?

Context for the IM Review

Sectors are in a period of change

4.1 The energy and airport sectors are in a period of change, particularly in relation to the physical impacts of climate change, the transition to a low carbon and climate-resilient economy, and the ongoing impact of COVID-19. Further changes in technology, government policy and consumer preferences are also expected to impact these sectors in the short, medium and long term. A key development is the recent publication of the first emissions reduction plan, which contains strategies, policies and actions for achieving the first emissions budget. The plan is likely to have significant impact on both sectors.[38]

[38] New Zealand Government "Aotearoa New Zealand's First Emissions Reduction Plan" (16 May 2022).

4.2 As the external environment in which these sectors operate changes, it is important that the IMs ensure that suppliers of regulated goods and services have incentives to invest and innovate to maintain reliable services, while responding to changing consumer preferences, technology, and other environmental factors, including climate change, consistent with outcomes in competitive markets.

4.3 Through our open letter and decarbonisation workshop in 2021, we sought feedback from stakeholders on issues regarding the external environment for suppliers of regulated goods and services. We received a broad range of feedback on issues relating to decarbonisation and the use of new energy sector technologies (the "energy transition"), as well as the impacts of COVID-19.

4.4 The Commission, regulated suppliers, consumers and other interested parties have now had over ten years' experience with Part 4 regulation. While most aspects of the regulation are working well, there may be scope for some aspects to be improved. Stakeholders have raised issues and provided evidence on possible issues with the IMs as part of engagement on other projects, and we have identified some issues internally. Our obligation to review all of the IMs at least every seven years provides us a useful periodic opportunity to consider such issues.

4.5 The following chapters set out the issues we have identified, categorise them into key topics for the IM review, explain our understanding of each topic, and seek input from you to help shape each topic.

How we identify issues

4.6 We take a broad approach to identifying issues with the IMs. Our approach includes identifying issues:

4.6.1 through engagement with stakeholders;

4.6.2 internally within the Commission; and

4.6.3 as part of our review of the IMs for effectiveness (as described in Chapter 9).

4.7 This chapter focuses on issues raised by stakeholders relating to the external environment.

Issues raised by stakeholders

Stakeholders are increasingly focused on decarbonisation and COVID-19

4.8 Based on feedback from stakeholders, there has been an increasing focus on climate-related risks since the 2016 IM review.

4.9 Most stakeholder feedback we received to date on the external environment has been related to New Zealand's decarbonisation and use of new energy sector technologies and business models. Specifically:

4.9.1 decarbonisation of the economy affecting the use of fuels, increasing demand for electricity, potentially lower demand for gas, and potentially more demand for alternative greener gases;

4.9.2 as electricity demand is expected to increase through increased electrification, there are new technologies and alternative solutions for accommodating growth on electricity networks; and

4.9.3 the demand-side expectations of consumers, government and industry are also increasing, particularly in the areas of decarbonisation of energy supply, consumer engagement in energy services, and uptake of new technology.

4.10 More recently, the COVID-19 pandemic, and subsequent travel protocols to manage COVID-19 at the border, have resulted in significant disruption to travel and airport businesses.

Our framework for identifying and categorising climate change-related issues with the IMs

4.11 We propose using the Task Force on Climate-Related Financial Disclosures (**TCFD**) framework as the basis for our initial review of climate change-related risks and opportunities.[39] It is important to note that we are not applying a full TCFD assessment, but we are instead adopting the TCFD terminology of risk themes and impacts to help identify and categorise these climate change-related risks and opportunities. Attachment A of the draft IM review framework paper provides details on the TCFD and how we propose to apply it.[40]

4.12 We are proposing to use the TCFD terminologies as their increasing adoption both domestically and internationally will help promote a better understanding and discussion of climate-related risks and opportunities across both the private and public sectors. The increasing use of the TCFD framework is evidenced in:

4.12.1 Eight regions, including New Zealand,[41] having proposed or introduced TCFD-aligned official reporting requirements and climate-related disclosures. Specifically, New Zealand has introduced the Financial Sector (Climate-related Disclosures and Other Matters) Amendment Act 2021. The new law requires around 200 large financial institutions covered by the Financial Markets Conduct Act 2013 to start making climate-related disclosures from 2023.

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39 TCFD "Recommendations of the Task Force on Climate-related Financial Disclosures" (15 June 2017).

40 Commerce Commission “2023 input methodologies review” webpage, scroll down to “Draft framework paper” (20 May 2022).

41 Other regions include Brazil, the European Union, Hong Kong, Japan, Singapore, Switzerland, and the United Kingdom.

4.12.2 A number of regulated and unregulated entities in New Zealand have already begun voluntarily reporting on climate-related issues, despite not being covered under the incoming climate-related disclosures legislation.

Themes raised in engagement to date

4.13 Submissions received on our open letter and feedback from the decarbonisation workshop have been valuable in informing our initial planning for the IM Review and beginning to identify issues.[42] In particular, stakeholders have provided us with information on their views on decarbonisation and its expected impact on their businesses.

4.14 We have identified several themes through this engagement, including:

4.14.1 **Decarbonisation-driven investment requirements**: Many stakeholders consider that decarbonisation will require a step-change in investment for their business. This is particularly likely for EDBs and Transpower given the significant expected increase in electricity demand driven by the electrification of transportation and process heat, as well as the increased penetration of flexibility services and distributed energy resources (**DER**) in the networks. [43,44] On the other hand, expected emerging technologies and business models provide a broader suite of energy options that could make electricity demand more elastic and/or provide greater opportunities for services to be supplied more efficiently and at relatively lower cost relative to grid upgrades.

Regulated suppliers advocated for using a forward-looking approach to forecasting for price-quality paths rather than historic expenditure, given the expected step change in investment needs. Regulated suppliers also consider some investment may need to happen ahead of demand and raised the issue of first-mover disadvantage (where the first connector to the grid, or to the local distribution network, covers the full cost of a connection until another party connects, potentially discouraging first movers from connecting).

Decarbonisation will also clearly impact the gas sector, with demand for natural gas expected to decrease. These issues were considered in Gas

[42] See Commerce Commission "Open letter - our regulatory priorities for energy networks and airports" (2020) webpage.

[43] Process heat primarily refers to the application of heat during industrial and manufacturing processes.

[44] Climate Change Commission "Ināia tonu nei: A low emissions future for Aotearoa", page 288.

DPP3 and targeted amendments to the gas IMs have been proposed as part of that process (note these IMs remain subject to this IM Review).[45]

The aviation sector is also encountering decarbonisation-driven trends, which are expected to gain traction over time, including electrification of small planes and transitioning to sustainable aviation fuels. The prevalence of working-from-home and less frequent business travel, while initially driven by COVID-19, is likely to persist. Changing consumer sentiment regarding the environmental cost of air travel may also impact demand, although it is unclear to what extent. Therefore, the implications of decarbonisation for regulating airports are less clear to us at this point than for the energy sector.

4.14.2 **Whether the Part 4 regime enables decarbonisation:** Several regulated suppliers questioned whether explicit consideration of decarbonisation and wider energy sector outcomes needs to be reflected in the Part 4 regime. The draft IM review framework paper explains how we consider we may take into account the permissive considerations under section 5ZN of the Climate Change Response Act factors in our decision making in the IM Review.[46]

4.14.3 **Innovation incentives:** Suggestions were made to revisit the existing innovation allowance for EDBs, for example, by increasing the size of funding available, reducing administrative burden, and moving to an ex-ante conditional approval or 'use it or lose it' framework. Several stakeholders suggested we look to emulate certain Australian and UK innovation incentives. Many stakeholders submitted that the regulatory framework should do more to encourage collaboration between EDBs, including collaboration on innovation and pilot implementations and promoting sharing of intellectual property arising from successful innovations.

4.14.4 **Uncertainty:** Many stakeholders noted that while general trends regarding decarbonisation are clear, the exact path forward and pace of change for our regulated sectors is subject to a degree of uncertainty. To address this, it was recommended that uncertainty mechanisms, like existing price-quality path reopeners, should be more dynamic and streamlined.

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[45] Commerce Commission "Proposed amendments to input methodologies for gas pipeline businesses related to the 2022 default price-quality paths – Draft reasons paper" (10 February 2022).

[46] Commerce Commission "2023 input methodologies review" webpage, scroll down to "Draft framework paper" (20 May 2022), p. 2.29 – 2.33.

4.14.5 **Flexibility services and DER:** Stakeholders noted large uptake of DER may be required to avoid inefficient investment. There are various options for mechanisms to encourage this, including through targeted operating expenditure (**opex**) or capex incentives or amendments to the related party rules and cost allocation rules which might hamper the application of other incentive mechanisms. Several stakeholders advocated for regulatory incentives to encourage EDBs to trial flexibility services and third-party services. Distribution System Operators (**DSOs**) have also been raised in this context, and we are interested in stakeholder views on whether the IMs impact on the operation of efficient distribution systems and, if so, how.

Other issues we have identified or considered

4.15 Various stakeholders, including the Commission, have identified innovation and efficiency as 'high-level' issues over the past months and years. We have identified the below questions and approach to assess these two issues:

4.15.1 **Efficiency and innovation performance** - the role that efficiency and innovation performance have played in the significant expenditure increases we have observed to date and the future role that efficiency and innovation performance can play in the transition to increased electrification, to make it less costly than under business as usual.

4.15.2 **Incentives to improve efficiency and innovate -** incentives on suppliers to improve efficiency and to innovate to date is a potential issue to explore and assess in the IM Review. It may be the case that, independently of past effectiveness, incentives still need to be strengthened given the context of the transition to increased electrification.

4.15.3 **Quality** – To better understand quality generally, we ask whether there are dimensions of quality which are not currently measured but should be.

4.16 Among these issues, we have also broadly assessed the effectiveness of all IMs to the extent they are not covered by other topic areas. Some existing issues we've identified include:

4.16.1 ambiguity in the definition of opex in the GPB and airport services IMs;

4.16.2 Transpower's greater involvement (or potential involvement) in contestable activities since we originally set Transpower's IMs;

4.16.3 Whether the related party transaction rules facilitate innovative delivery of electricity to support decarbonisation while addressing possible cost cross-subsidisation issues.

4.16.4 Various issues relating to ambiguity and uncertainty for reopeners.

How issues link to Part 4 and the IMs

How the issues raised relate to our regulatory tools

4.17 As expressed in Figure 3.2 in Chapter 3, the first step in the 'Review' phase of the IM Review is identifying issues and associated problems or opportunities.

4.18 We have created Table 6 which summarises the issues stakeholders have raised regarding the external environment through our engagement to date. Table 6 maps these issues to IMs or other elements of the Part 4 regime and notes which topic chapters discuss each issue in depth.

4.19 In Table 6, we have grouped the issues, as presented to us by stakeholders, into broad categories for each sector.[47] Each issue category is then linked to:

4.19.1 a TCFD risk theme (eg, transitional risk), where relevant;

4.19.2 a subcategory (eg, policy and legal); and

4.19.3 associated impacts.

4.20 Attachment A of the draft IM review framework provides further explanation of the TCFD categorisations.[48]

4.21 Issues are then linked to elements of the Part 4 regulatory framework, and to subsequent topic chapters in this paper. The table also notes if an issue is relevant to the targeted ID review or the draft IM review framework.[49]

4.22 There are more issues related to electricity distribution and transmission than to other regulated suppliers. This is due to some of our most recent work, including the December 2021 workshop, being focussed on electricity lines services. A number of the issues raised for gas pipeline services have already been considered in Gas DPP3, with some IM amendments proposed as part of that reset (noting the IM Review will still cover all gas IMs).

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[47] See Commerce Commission "Open letter on priorities for energy networks and airports – Summary of submissions" (20 October 2021) *and* Commerce Commission "Workshop on the impact of decarbonisation on electricity lines services – Summary of stakeholder views" (1 February 2022) for an overview of submitters' views.

[48] Commerce Commission "2023 input methodologies review" webpage, scroll down to "Draft framework paper" (20 May 2022).

[49] Please refer to Commerce Commission "2023 input methodologies review" webpage, scroll down to "Draft framework paper" (20 May 2022). and Commerce Commission "Targeted Information Disclosure – EDBs Process and Issues Paper" (23 March 2022).

Table 6: Mapping issues to the Part 4 regime

Sector	Issue Category	Issues we have heard from stakeholders	TCFD risk theme, subcategory and impact	Link to Part 4 regulatory instruments	Link to topic chapter, draft framework paper, or targeted ID review
Electricity Distribution	Investment	• Forecasting based on historic expenditure is no longer appropriate - a forward-looking approach is required. • General shift from capex to opex (driven both by businesses and changes to IFRS accounting standards). • Consumer connection capex is difficult to forecast and often driven by decarbonisation initiatives – a new approach should be considered (eg, pass through costs, removal from IRIS).	*Transitional - Policy and legal* • Write-offs, asset impairment, and early retirement of existing assets due to policy changes. • Affects ability to recover costs.	• DPP (expenditure forecasting) • CPP (expenditure forecasting) • ID (forecasting in asset management plans) • IM (form of control) • IM (price path reopeners) • IM (IRIS) • IM (WACC percentile uplift)	• 5 – Risk allocation and incentives under price-quality regulation • 6 – Issues relating to the cost of capital • 7 – CPPs and in-period adjustments to price-quality paths • Targeted ID review
	Innovation	• Regulatory framework should encourage EDB collaboration and innovation. • The innovation allowance process can be streamlined and enhanced. • Consider implementing innovation mechanisms used overseas (eg, regulatory sandbox initiative). • Consider allowances to encourage investments like	*Opportunity - Resource efficiency* • Increased production capacity, resulting in increased revenues. • Benefits to workforce management and planning (eg, improved health and safety, employee satisfaction) resulting in lower costs.	• DPP (expenditure forecasting, innovation allowances) • CPP (expenditure forecasting, innovation allowances) • ID (to highlight least cost solutions, disclosure of innovation including considering non-network solutions, information for non-network providers) • IM (definition of recoverable costs) • IM (IRIS)	• 5 – Risk allocation and incentives under price-quality regulation • Targeted ID review

		real time Low Voltage network monitoring.			
	Uncertainty	• Need for more dynamic and streamlined price path reopeners. • Consider development of contingent allowances, pass-through costs, recoverable costs, or other flexibility mechanisms that can be triggered. • There is uncertainty of the timing of the need for investment.	*Transitional - Policy and Legal* • Affects ability to recover costs. • Increased operating costs	• DPP and CPP (price path reopeners) • CPP (single issue CPPs) • IM (reopeners)	• 7 – CPPs and in-period adjustments to price-quality paths • Targeted ID review
	Regulatory approach	• Meeting climate change obligations should be enabled by the Part 4 regime. • Regulators need to be aligned on decarbonisation issues.	*Transitional - Policy and legal* • Affects ability to recover costs • Increased operating costs	• Part 4 purpose	• Draft IM review framework paper

	Flexibility Services	• Regulatory incentives may be required to encourage EDB uptake of flexibility services and non-network solutions, and there should be a level playing field for third party providers of such services.[50]	*Opportunity - Products/Services* • Increased revenues through new solutions to adaptation needs • Better competitive position to reflect shifting consumer preferences, resulting in increased revenues.	• DPP and CPP (revenues) • ID (visibility of process of assessing non-network solutions) • IM (IRIS)	• 5 – Risk allocation and incentives under price-quality regulation • 9 – Effectiveness of the IMs for each sector (eg, related party transactions and cost allocation rules) • Targeted ID review
	Consumer affordability	• Funding investment must not place an undue burden on consumers. • Consideration should be given to how to quantify impacts to consumers, including the social cost of carbon. • Clear regulatory settings are required to support consumer uptake of DER.	*Transitional - Reputation* • Reduced revenues from decreased demand for regulated goods/services.	• DPP and CPP (revenues) • ID (asset management) • IM (IRIS)	• 5 - Risk allocation and incentives under price-quality regulation • Targeted ID review
	Data	• Industry needs to approach data collection efficiently. • Benefits to increasing data collection on LV networks, producing heatmaps of network congestion.	*Opportunity - Products/Services* • Increased revenues through new solutions to adaptation needs	• ID (visibility of process of assessing non-network solutions)	• Targeted ID review

[50] Note this may also fall within the Commission's role under Part 2 of the Act regarding restrictive trade practices.

Electricity Transmission	Investment test	• No explicit mechanism to account for the benefits of decarbonisation on the demand side. • Consider applying a social discount rate to incorporate societal benefit.	*Transitional - Policy and legal* • Affects ability to recover costs.	• Transpower Individual Price-quality Path (**IPP**) • Transpower Capex IM	• 5 – Risk allocation and incentives under price-quality regulation • 8 – Transpower Investment
	Volume and uncertainty of new connections	• Increasing number of connection enquiries. • Price path reconsideration lacks flexibility and responsiveness.	*Transitional - Market* • Increased production costs due to changing input costs and required outputs • Affects ability to recover costs	• Transpower IPP • Transpower IMs (price path reconsideration) • Transpower Capex IM	• 7- The role of CPPs, in-period adjustments and reopeners in price-quality paths • 8 – Transpower Investment
	Customer value propositions	• Commission to reconsider our stance on situations where action to reduce carbon emissions may incur additional costs but consumers are willing to support this.	*Opportunity - Products/Services* • Better competitive position to reflect shifting consumer preferences, resulting in increased revenues.	• Transpower IPP (revenues) • Transpower Capex IM	• 8 – Transpower Investment • Draft IM review framework paper
Gas Pipelines	Asset stranding	• Concern about asset stranding risk given the uncertain future of gas and who pays for this.	*Transitional - Policy and legal* • Write-offs, asset impairment, and early retirement of existing assets due to policy changes. • Affects ability to recover costs.	• DPP and CPP (revenues) • IM (asset valuation and depreciation including RAB indexation)	• 5 - Risk allocation and incentives under price-quality regulation

	Innovation	• Should investigation of the viability of low carbon gases be incentivised.	*Opportunity - Products/Services* • Increased revenues through new solutions to adaptation needs	• DPP and CPP (expenditure forecasting, innovation allowances)	• 5 - Risk allocation and incentives under price-quality regulation
Airports	COVID-19	• Ongoing uncertainty regarding passenger numbers. • Airports not progressing capital plans. • Are risks like COVID-19 compensated for by the weighted average cost of capital (**WACC**) (airlines raised issues with airports' ancillary income not being included).	N/A – not a TCFD risk.	• ID (revenues, expenditure forecasting, asset valuation, and cost of capital)	• 5 - Risk allocation and incentives under price-quality regulation • 6 – Issues relating to the cost of capital

What the topic chapters will address

4.23 Chapters 5 - 9 will explore the issues summarised in Table 6, as well as issues we have identified internally, issues raised during engagement that are unrelated to the external environment, and issues which have been raised outside of the engagement outlined above. These chapters will explore the links from these issues to the IMs, and we encourage submitters to focus their responses on:

4.23.1 the connections between the issue and particular IMs; and

4.23.2 applying the draft IM review framework to show why the IM Review should prioritise the issue and what the high-level options for resolving the issue could be.

Chapter 5 - Risk allocation and incentives under price-quality regulation

4.24 As can be seen in Table 6, many of the issues identified regarding the external environment are discussed in Chapter 5, *Risk allocation and incentives under price-quality regulation*. Chapter 5 outlines issues related to the incentives set out in the IMs for regulated suppliers to improve efficiency, the form of control applying for regulated suppliers, issues related to longer term demand risk that can be addressed through the IMs, and issues raised around regulatory asset base **(RAB)** indexation and inflation risk. Attachment A (page 148) also covers market outcomes that we have observed that may be relevant to how we consider changing the IMs to address the issues raised in Chapter 5.

Chapter 6 - Issues relating to the cost of capital

4.25 In Chapter 6, *Issues relating to the cost of capital*, we discuss the issue of the impact of COVID-19 and we include in this discussion the impact of COVID-19 on airports (see paras 6.19-6.20). We also discuss the credit rating for airports as a standalone topic (see paras 6.81-6.90). Currently airports have a notional credit rating of A- in the IMs while the airports have actual credit ratings of BBB+ and lower.

4.26 Chapter 6 also covers a number of technical issues we have identified internally or which stem from the 2016 IM review which are therefore not covered in Table 6. These include:

4.26.1 Overview of cost of capital.

4.26.2 The impact of COVID-19 on financial markets.

4.26.3 Asset beta.

4.26.4 Issues related to the tax adjusted market risk premium (TAMRP).

4.26.5 Adjusting the IMs to allow for a four-year regulatory period.

4.26.6 Split cost of capital.

4.26.7 Cost of debt issues.

4.26.8 Credit rating for airports.

4.26.9 Reconsidering the WACC percentile for electricity and gas businesses.

Chapter 7 - In-period adjustments and reopeners of price-quality paths

4.27 Chapter 7, *In-period adjustments and reopeners of price-quality paths*, considers issues around uncertainty mechanisms in price-quality paths. It sets out how we will review the flexibility in the IMs for price-quality paths to respond to an upcoming period of rapid change in the policy environment and technology. It covers the policy aspects of the review of price-quality path flexibility mechanisms.

4.28 We propose considering the IMs' mechanisms for adjusting, reopening or replacing price-quality paths, ranging from pass-through costs and recoverable costs, through to reopener mechanisms and then to IM requirements for CPPs (for suppliers subject to default/customised price-quality regulation).

4.29 A key issue in this chapter is about how well the CPP arrangements in the IMs are working and what might make them work better. Unlike a DPP reopener provision which changes the price-quality path during the DPP regulatory period, a CPP replaces the existing DPP and starts a new regulatory period.

4.30 We intend to review the effectiveness of the CPP process requirements and information requirements in the IMs based on feedback from recent CPP implementations. This would include evaluating whether there is a need for a 'single-issue' CPP (ie, a CPP that focuses on only a single incremental change to the existing price-quality path), or whether specific new reopener mechanisms would be more effective.

Chapter 8 - Transpower investment

4.31 Chapter 8, *Transpower investment*, focuses on uncertainty in the context of Transpower's capex and opex. We will be considering the effectiveness of Transpower's incentives to innovate and invest within an IPP regulatory period and across regulatory periods. A key aspect of this is how the IMs applying to Transpower allow Transpower to deal with the implications of uncertainty about the investment need, the timing of investment, and the magnitude of uncertainty in the forecast of costs.

4.32 We intend to review the Capex IM for barriers to the efficient connection of electricity generation (and particularly renewable generation), electricity demand

resulting from the decarbonisation of large industrial users, or the optimal dispatch of generation. This could involve considering whether the IMs applying to Transpower need amending to reflect investment scenarios that were not explicitly considered when the IMs were first set or last reviewed.

Chapter 9 - Effectiveness of the IMs for each sector

4.33 Chapter 9, *Effectiveness of the IMs for each sector,* outlines how we will broadly assess the effectiveness of all IMs to the extent they are not covered by other topic areas. At present, we consider that this will cover two types of amendments: potential refinements to the drafting of the IMs (that do not relate to changes to the underlying policy), and policy amendments related to matters that are not reviewed in other topic areas.

4.34 We are already aware of some issues raised within Table 6 that could potentially be addressed by the IM Review, eg, whether the related party transaction and cost allocation rules facilitate innovative delivery of electricity to support decarbonisation while addressing possible cost-cross subsidisation issues.

4.35 In addition, as part of the effectiveness review we propose to address issues including ambiguity in the definition of opex in some IMs, whether changes to our cost allocation approach for Transpower are necessary in relation to greater involvement in contestable activities, and any other issues related to readability, workability and flexibility that we identify or receive submissions on.

What further information is needed to advance our thinking?

4.36 We welcome feedback about whether there are evidence and/or further issues not yet identified regarding the external environment – noting that more technical or specific issues not covered in this chapter may be addressed in the subsequent topic chapters, particularly Chapter 9.

4.37 We are particularly interested in submitters' views on how these issues can be addressed by the IMs and which IMs issues are connected to. This will enable us to focus our thinking on defining problems and opportunities as they relate to the IMs (Box 2 of Figure 3.2).

4.38 We would also like to understand whether submitters agree with our assessment of what issues can be addressed by IM amendments, and whether submitters support the use of the framework and approach adapted from the TCFD as a useful method of framing risks and issues, and any views on refining this.

4.39 We encourage submitters to support their views using the draft IM review framework, including by outlining why:

4.39.1 addressing a potential issue further in the IM Review would promote the section 52A purpose of Part 4 and the section 52R IM purpose;

4.39.2 outlining how resolving a particular issue with an IM change would promote one or more of the three overarching objectives for the IM Review; and

4.39.3 particular IMs do not require changes to better promote the section 52A purpose of Part 4 and the section 52R IM purpose.

4.40 We have published the draft IM review framework alongside this paper.

Chapter 5 Risk allocation and incentives under price-quality regulation

Purpose of this chapter

5.1 This chapter identifies and considers issues relating to incentives of price-quality regulated suppliers, the allocation of risk between regulated suppliers and consumers, and any compensation that suppliers might receive where they bear certain risks. It considers the role of the IMs in relation to these issues.

Structure of this chapter

5.2 The structure of this chapter is:

- 5.2.1 Overview of risk allocation and incentives under price-quality regulation.
- 5.2.2 Outcomes and issues in the market for electricity distribution services.
- 5.2.3 Outcomes and issues in the market for gas pipeline services.
- 5.2.4 Incentive mechanisms to improve expenditure efficiency for EDBs and Transpower.
- 5.2.5 Form of control (short-term demand risk).
- 5.2.6 Longer-term demand risk.
- 5.2.7 RAB indexation and inflation forecasting.

Overview of risk allocation and incentives under price-quality regulation

5.3 There are several topics that fall within the focus of this chapter. This is because the section 52A Part 4 purpose requires us to ensure that suppliers have a broad set of incentives promoting outcomes consistent with outcomes in competitive markets. These include incentives to invest, innovate, improve efficiency, share efficiency gains, provide the desired quality and limit excessive profits for the long-term benefit of consumers.

5.4 We consider that the incentive mechanisms in the IMs should evolve over time, taking account of their effectiveness in promoting the Part 4 purpose and IM purpose under section 52R, and the relevant context. In that respect, we consider the IM Review offers us a chance to examine whether:

- 5.4.1 the incentives provided by the IMs are effective in influencing suppliers' behaviour and producing market outcomes that are consistent with the purpose of Part 4; and
- 5.4.2 whether the incentives provided by the IMs should be changed or new incentives introduced to influence suppliers' behaviour and produce market outcomes that are more consistent with the purpose of Part 4.

5.5 Since we cannot observe the operation of incentives directly, we must examine observed market outcomes and suppliers' performance, in order to infer the extent to which incentives are present and working to achieve the outcomes in the purpose of Part 4.[51] This helps us identify issues to potentially consider and provides important context when considering changes to the IMs which impact on incentives.

5.6 The focus of this topic is on incentives generally (and incentive mechanisms) and risk allocation in the context of IMs underpinning price-quality regulation. ID has a role in shining a light on how well incentives are working and on how risks are allocated for regulated suppliers (whether or not those suppliers are subject to price-quality regulation). ID also provides incentives in its own right for improved performance.

5.7 We note:

5.7.1 In the case of airports, the last IM review (and subsequent ID changes) included a number of changes intended to make more transparent how airports were allocating risks;

5.7.2 The COVID-19 pandemic and the policy response has had a significant impact on airports and the demand for aeronautical services. Wellington Airport submitted in response to our open letter that this highlights that airports are exposed to significant non-systematic risk that is not compensated by our current WACC IMs.[52] As we mention in chapter 6, the WACC does not usually compensate for non-systematic risk.[53] Therefore, we consider it is appropriate to consider this risk, its allocation and any required compensation separately from the WACC. We cover this issue in paragraphs 5.53 and 5.61; and

5.7.3 In the case of exempt EDBs, the targeted ID review is looking at improvements to ID for EDBs (including exempt ones), which should strengthen incentives to improve performance.

5.8 Note that examining market outcomes may uncover issues that can be addressed through the IMs, but also others which cannot. So, while this chapter is broad in scope, the focus is on identifying issues that can be addressed through the IMs.

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[51] Decisions about risk allocation and compensation are a way of influencing incentives on suppliers.

[52] Wellington Airport "RE: Open letter-ensuring our energy and airports are fit for purpose" (31 May 2021).

[53] Commerce Commission 'Fibre input methodologies: Main final decisions – reasons paper' (13 Oct 2020) p. 6.1129 - 6.1130.

Outcomes and issues in the market for electricity lines services

What is the topic area?

5.9 The aim of this section is to summarise observations on the following outcomes in the market for electricity lines services, which are directly relevant to the purpose of Part 4:[54]

- 5.9.1 investment;
- 5.9.2 innovation;[55]
- 5.9.3 efficiency;
- 5.9.4 revenues and prices;
- 5.9.5 quality; and
- 5.9.6 profits.

5.10 While the above are the performance outcomes relevant under Part 4, and this section briefly summarises all of them based on the readily available information, the focus of this section is on those outcomes which are most relevant to the incentives provided by the IMs underpinning price-quality regulation.

5.11 We also ask stakeholders for feedback on our identified issues and any other incentive issues affecting IMs relating to electricity lines services that we should consider as part of the IM Review.

5.12 Most of the findings below come from our 2020 "Trends in local lines company performance" publication, except those relating to productivity,[56] efficiency, innovation, and the risk of a substantial future revenue—and potentially price—increase.[57] We make it clear when content relates to Transpower. Attachment A (page 148) contains a more complete synthesis of the evidence we have identified.

Key findings on market outcomes

5.13 Expenditure by EDBs and Transpower (including investment to meet demand) has increased significantly since 2008. It has nearly doubled in nominal terms.

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[54] We make clear when findings relate to Transpower, in its provision of electricity transmission services.

[55] Our IMs define innovation projects as a project that is focussed on the creation, development or application of a new or improved technology, process or approach in respect of the provision of electricity lines services in New Zealand. This definition is largely consistent with the definition of innovation in the Oslo Manual

[56] Productivity is defined as the ratio of a volume or monetary measure of outputs (ie goods, services or prices) to a volume or monetary measure of the inputs used in their production. Growth in productivity means that an industry for example can produce more output from the same amount of input, or the same level of output from fewer inputs. Note that a fall in productivity does not necessarily mean worse productive efficiency, since falling productivity could be driven by factors outside the firm or management's control.

[57] Commerce Commission "Trends in local lines company performance" (17 December 2020).

5.14 This trend of increasing expenditure has coincided with a declining trend in the WACC. As a result, increasing levels of expenditure have been partially offset by a falling WACC (driven by a falling risk-free rate). This meant that allowed revenues did not grow as fast as expenditure did over this period.

5.15 Nevertheless, average electricity distribution revenues and prices have still grown faster than inflation, driven by rising expenditure.[58] This increase in price has also been higher than the increase in some of the main drivers of network growth (ie, growth in customers, energy and power supplied).

5.16 The quality of service we currently measure (reliability) delivered to consumers of electricity has seen little change.[59]

5.17 Average opex productivity of EDBs appears to have steadily declined since 2002.[60] Transpower's overall productivity has been broadly stable since 2011, while capex and opex productivity has appeared to compare favourably and less favourably respectively, against Australian comparators.[61]

5.18 Profitability across EDBs has been below our estimates of reasonable returns. EDBs have not been making excessive profits.

5.19 The evidence before us suggests that innovation activity occurs, but it has not yet clearly resulted in improved consumer outcomes in the form of higher productivity or measured service quality. [62,]

5.20 Looking ahead, we see a high risk of substantial revenue—and potentially price—increases. This would result from the combined effect of the following:

5.20.1 historically high and rising combined value of the RABs, which are used as the base to calculate the return on investment;

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58 In this chapter, we use 'price' to refer to revenue per customer.

59 This refers to reliability, as measured by overall network System Average Interruption Duration Index (SAIDI) and System Average Interruption Frequency Index (SAIFI).

60 We note that in the context of the ongoing gas DPP reset, Vector submitted that "EDBs attributed the… change in [EDB's] opex productivity [to] heightened compliance requirements", which would have presumably increased the costs of delivering the service. See: Commerce Commission "Default price-quality paths for gas pipeline businesses from 1 October 2022 (10 February 2022), page 99; NERA "Opex Partial Factor Productivity for DPP3" Electricity Network Association (18 July 2018); Economic Insights "Electricity Distribution Industry Productivity Analysis: 1996-2014" - Report prepared for Commerce Commission (30 October 2014)..

61 Commerce Commission "Independent Verification Report - Transpower's RCP3 Expenditure Proposal (2020-25)" (12 October 2018), page 76.

62 Commerce Commission "Impacts of emerging technologies in monopoly parts of electricity sector" webpage;; Commerce Commission "Default price-quality paths for electricity distribution businesses from 1 April 2020 – Final decision: Reasons paper" (27 November 2019), pages 80, 81; Electricity Authority "Review of distributor's capacity to respond to changing technology" (16 April 2019), page iii, 49, 50; , page iii, 49, 50; Commerce Commission "Review of electricity Distribution Businesses' 2021 Asset Management Plans in relation to decarbonisation: Summary paper (18 November 2021)", page 5.

5.20.2 historically high and rising expenditure levels at present, which are key drivers of allowed revenues and will likely be indexed to inflation input cost indices;

5.20.3 views from EDBs that there is a need to "radically increase" expenditure in the future;[63]

5.20.4 high and rising economy-wide price inflation to levels not seen for decades, which will be used to revalue the indexed RABs;[64] and

5.20.5 steeply rising interest rates and risk-free rates, which are driving the WACC higher.[65]

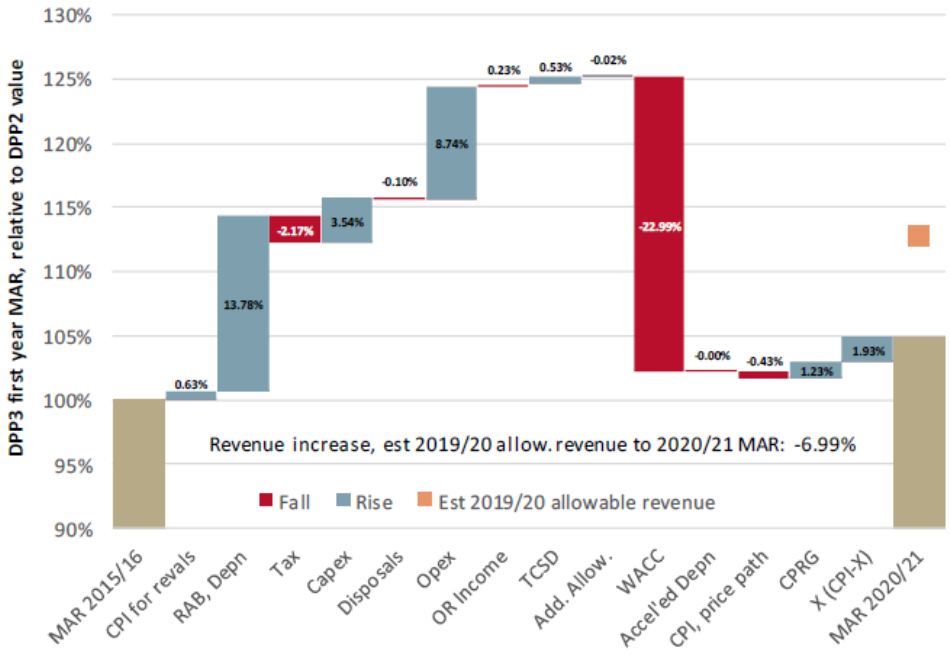
5.21 Looking at our last EDB DPP reset illustrates this. Figure 5.1 shows the change in nominal net allowable revenue in the first year of EDB DPP2 (2015/2016) and the first year of EDB DPP3 (2020/2021).

[63] Electricity Networks Association (ENA) - news and events

[64] We note that while this may result in higher RABs, indexation maintains the real value of the assets, so suppliers and consumers are insulated from inflation risk. The net impact on allowed revenues will depend on the difference between actual inflation during DPP3 and forecast inflation for DPP4.

[65] We note that, at the time of writing, the WACC is still below the past 10-year high, and may not peak at that level, although there is uncertainty around this. Risk-free rates—which are on a sharp rising trend—are currently near 3.5%, which is similar level to where they were in 2015, when the DPP2 WACC was 7.19%. In 2015, the Reserve Bank of New Zealand's (RBNZ) official cash rate (OCR) was 3-3.5%, which is where the RBNZ currently projects the OCR will get to in 2025.

Figure 5.1: Drivers of change in net allowable revenue between DPP2 and DPP3 for non-exempt distributors



Source: Default price-quality paths for electricity distribution businesses from 1 April 2020 – Final decision: Reasons paper (27 November 2019), page 15.

5.22 Figure 5.1 shows that, if the factors set out in paragraph 5.20 materialise, the main drivers of revenue could be even larger. Crucially, the "WACC" bar would turn positive. This would contribute to significant revenue increases.

5.23 It appears likely that allowed revenues will increase substantially even in the absence of decarbonisation-driven expenditure. Adding this expenditure on top will exacerbate the revenue increases. We explain in the next section the extent to which this may be an issue.

5.24 The impact on average prices (ie, average revenue per customer or per kWh) will depend on suppliers pricing practices—over which the Electricity Authority has responsibility—and the volumes of electricity consumed. The latter are expected to increase with electrification, which would tend to moderate increases in price (when defined as revenue per kWh).

What issues have been raised on this topic for consumers and suppliers?

Issues we raise[66]

5.25 Based on our overview of market outcomes, there are two key issues that concern us for both EDBs and Transpower:

[66] These issues relate to all EDBs and Transpower, not just price-quality regulated ones.

5.25.1 the role that efficiency and innovation performance have played in the significant expenditure increases we have observed; and

5.25.2 the future role that efficiency and innovation performance can play in the transition to increased electrification.

5.26 There is a third issue that we think we need to understand better, to be more confident about suppliers' efficiency and innovation performance: quality, and whether there are dimensions of quality which are not currently measured, but should be.[67]

5.27 We note that EDBs and Transpower have been able to finance increasing expenditure over time, which suggests that the regime provides sufficient incentives to invest, under section 52A(1)(a) of the Part 4 purpose. This is important because underinvestment that leads to outages is often worse for consumers than high prices. An expensive service is often better than no service.

5.28 We mentioned the risk of substantial revenue—and potentially price—increases as a result of rising expenditure. We want to be clear that revenue or price rises are not the problem in and of themselves. The potential problem is any expenditure over and above the efficient level, which necessarily leads to prices for consumers that are higher than required to deliver the service at the quality that consumers demand, consistent with section 52A(1)(b) of the Part 4 purpose. Higher prices than required risks making the transition to increased electrification harder and more costly.

5.29 Understanding past efficiency and innovation performance is useful to determine the effectiveness of the incentives already in place and identify potential changes to them. While we have not rigorously assessed suppliers' efficiency and innovation performance recently, we present some wider evidence in Attachment A (page 148). We invite further evidence from stakeholders.

5.30 We note our strong preference to evaluate—based on evidence—the effectiveness of our IM mechanisms aimed at incentivising improved efficiency and innovation, to inform any potential changes. At the same time, we acknowledge that assessing efficiency performance in particular, is a complex analytical exercise that requires the right methods, data, stakeholder engagement and consequently time.

[67] Our targeted information disclosure review is considering quality of service as one of the main issues to address through enhanced ID requirements. Commerce Commission "Targeted Information Disclosure Review – Electricity Distribution Businesses Process and Issues paper" (23 March 2022).

5.31 Where the IMs specify all details of an incentive mechanism (such as the opex IRIS, meaning the IMs alone govern the strength of the incentive to make opex savings over time), the adequacy of the evidence base will inform what type of IM changes, if any, may be appropriate.[68]

5.32 In the absence of an adequate evidence base for an incentive mechanism that is specified in the IMs, it may be appropriate to change the IMs to provide for the incentive mechanism and/or incentive rate(s) to be determined in price-quality determinations at resets. Existing examples of this are the innovation allowance or the quality incentive scheme, where the IMs provide for recoverable costs, but the quantum of the allowance and incentive strength is determined at the DPP reset.[69]

5.33 In relation to innovation, the evidence we have seen broadly relates to inputs to innovation (eg, expenditure) or outputs (eg, indicative activity levels [including self-reported ones], number and type of trials, technologies installed etc.). It is difficult to get a sense of the outcomes from this innovation-related activity.

5.34 Outcomes are what ultimately matter for consumers. Attachment A (page 148) discusses some potential ways of thinking about the outcomes from innovation given what we know about some of the other performance areas.

Encouraging innovation – risk-reward balance

5.35 The balance of risk and reward goes to the heart of providing incentives to innovate. Our current approach incentivises innovation in three main ways:

5.35.1 our price-quality paths provide incentives to find cost-saving or quality-enhancing innovations, since lower costs or better quality drive higher profits for suppliers. This approach allocates the risk and rewards within (and across) regulatory periods for suppliers – if the innovation succeeds, they reap the rewards; if it fails, they bear the costs (consumers share in the rewards/costs in future regulatory periods);[70]

5.35.2 the innovation allowance introduced in EDB DPP3 basically allocates up to half of the downside risk associated with approved innovation projects to consumers (ie, they cover up to half of the up-front allowance through higher line charges today), and allocates any rewards related to cost efficiencies within a regulatory period to suppliers (consumers may benefit from improved quality during the period). If the innovation succeeds, consumers share in any cost efficiencies in future regulatory periods; and

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[68] This will include considering the purpose of the IMs, which is to provide certainty, and the importance of the context at the time of a reset in determining the specifics of incentive mechanisms.

[69] We note that for the capex IRIS for EDBs, the capex retention factor (incentive rate) is specified as part of a PQ reset rather than being fixed in the IMs.

[70] We acknowledge suppliers' concerns about innovation spend that requires longer than five years to realise benefits or recover the cost of the investment/innovation (as the IRIS mechanism will allow suppliers to retain savings or bear costs for a period of five years). For example, see 5.90.

5.35.3 analysis and dissemination of information disclosure related to innovation can also play an important role, including by highlighting developments in the area and good practice by regulated suppliers. This can help promote a more innovative culture within suppliers.

5.36 Before considering calls to increase any upfront innovation allowance, which is currently considered at price-quality resets, we consider it is right to take a step back and consider the more fundamental question of whether the allocation of risks and rewards between consumers and suppliers is appropriate and effective in driving innovation in line with the section 52A(1)(a) limb of the Part 4 purpose. We also want to find out whether there are any other barriers to innovation.

Incentives to improve efficiency and innovate – potential issues

5.37 If our high-level assessment is correct, it suggests that the incentives on suppliers to improve efficiency and to innovate to date is a potential issue to explore and assess in the IM Review (although as mentioned below, it may be that the appropriate regulatory tools are not the IMs).

5.38 Separately, regardless of the findings on suppliers' past efficiency and innovation performance, and the effectiveness of existing incentives, it may be the case that incentives still need to be strengthened given the context of the transition to increased electrification.

5.39 Looking forward, we consider that the pace of improvements required in both efficiency and innovation is an important issue in and of itself. There is an opportunity—if not a need—to drive improvements in those two performance areas, given:

5.39.1 the need to decarbonise the economy at an accelerated pace, and the lines companies' role in that, is well documented, and from our engagement to date (outlined in Chapter 4) we understand it to be near the top of most (if not all) stakeholders' agendas;[71] and

5.39.2 what is perhaps less understood is the risk of a significant revenue—and potentially price—increase for consumers mid-decade, as mentioned in paragraph 5.205.23. It appears likely that allowed revenues will increase substantially even in the absence of decarbonisation-driven expenditure. This is mainly because suppliers' costs have almost doubled since 2008 (in nominal terms), the WACC is already on a rising trend, and inflation is high and growing (which will drive record high inflation-linked RABs even higher). Adding the decarbonisation expenditure on top will exacerbate the revenue increases.

[71] Commerce Commission "Review of electricity Distribution Businesses' 2021 Asset Management Plans in relation to decarbonisation: Summary paper" (18 November 2021).

5.40 A concerted effort to rapidly improve efficiency and accelerate innovation should help make the transition to increased electrification less costly than under business as usual.

5.41 In summary, our overview of market outcomes raises questions as to whether EDBs' efficiency and innovation performance has been consistent with promoting the outcomes that the Part 4 purpose seeks to achieve. The implication might be that EDBs' incentives to lift their performance in these areas may not be (or may not have been) sufficiently effective.

5.42 We recognise that the evidence before us is limited and imperfect. We welcome evidence from stakeholders that can help us better understand the market outcomes, suppliers' performance, the effectiveness of existing incentives, and potential issues to focus on in this IM Review.

The focus is on the IMs

5.43 As mentioned in paragraph 5.8, our focus at this stage is on identifying issues that can be solved through the IMs:

5.43.1 on efficiency, the IRIS is a key mechanism aimed at tailoring incentives to improve efficiency. The IMs specify most of the IRIS mechanisms that apply to EDBs and Transpower. This is discussed in the relevant sub-section in this chapter;

5.43.2 on innovation, the IMs provide for a recoverable cost to allow any innovation allowance we approve in a DPP to be recovered from consumers via increased revenue. They also define what an innovation project can be. However, the process, approval requirements, and the amount at stake are set out in the DPP decision/determination; and

5.43.3 on quality, there are no mechanisms in the IMs—and no quality IM—aimed specifically at encouraging service quality – the quality standards and incentives are part of the DPP, CPP or IPP determination.

5.44 The focus for the remainder of this chapter is on efficiency, and allocation of demand and inflation risk, broadly.

Issues raised by stakeholders

5.45 MEUG highlighted the need to better understand the efficiency performance of electricity lines businesses (**ELBs**):[72]

[72] Commerce Commission "Major Electricity Users Group (MEUG) Submission on Levy consultations" (5 February 2021), p. 2.

> The efficiency of EDB and Transpower we understand has been going backwards. To gain further insight on the scale of the lack of improvement in productivity problem the Commission should consider long-term efficiency gains in New Zealand compared to line monopolies overseas. We know benchmarking is difficult but the lack of efficiency improvements in one of the most important sectors in the economy requires better information to know how large the problem is to support resources needed and innovative regulatory approaches to be tested, and to measure if those are successful.

5.46 In its response to our open letter, Electricity Retailers Association of New Zealand (**ERANZ**) stated that the use of benchmarking studies can promote performance:[73]

> ERANZ welcomes the Commission's focus on benchmarking as a tool to drive performance, and consider benchmarking studies to identify opportunities and ensure customer wellbeing.

5.47 The Electricity Networks Association (**ENA**) submitted that delivering decarbonisation and responding to climate change will require a "radical increase" in expenditure. In their view, [74]

> The regulatory regime can therefore no longer be based on backward-looking operating expenditure profiles, and must include an allowance for the cost of adaption and innovation. ENA recommends that forecasts of expenditure in default price-quality paths focus on future expenditure needs, and the expenditure allowances informed by EDB's asset management plans, or some way of consistently recognising expenditure needs driven by decarbonisation. The existing methods of establishing expenditure "steps" have proved inadequate.

5.48 The ENA submitted that customer-connection capex should be excluded from the IRIS. We note that excluding customer-connection capex from the IRIS would mean it would no longer be subject to efficiency incentives. There are alternative ways of enabling network growth while maintaining efficiency incentives, such as a weighted average price cap (which we considered in the last IM review, and which applies to gas distribution businesses (**GDBs**)) or something similar to the connection capex mechanism that applies to Chorus under the fibre regime.

5.49 The ENA has submitted that more innovation funding is required upfront, to deliver "efficient distribution services that enable decarbonisation of the economy". They recommend that we overhaul the innovation allowance by increasing the size of funding available.

5.50 He Pou a Rangi (the Climate Change Commission) in its final advice to government on the next three emission budgets found:[75]

> Traditional ways of operating may not deliver the most efficient solutions at the pace required for the transition. The capacity and capability of electricity distribution businesses (EDBs) or lines companies will be important.

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[73] ERANZ "Response to Open Letter from 29 April 2021" (31 May 2021), p. 2.

[74] Electricity Networks Association (ENA) "Submissions", p.2

[75] Climate Change Commission: Ināia tonu nei: "A low emissions future for Aotearoa" (31 May 2021), p. 282.

> Some submissions reinforced this, including submissions from EDBs, local councils and others. These submitters highlighted the need to ensure the overall regulatory regime is sufficiently adaptive to enable EDBs to undertake the innovation and investment required to meet climate change outcomes.
>
> The Electricity Price Review and others have called for these businesses to undertake more innovation. Continued implementation by the Government of the recommendations from the Electricity Price Review will be crucial, as will evaluating whether the current regulatory environment and ownership structures of lines companies are fit for future needs.

5.51 solarZero submitted the following in response to our workshop:

> A new era of innovation is needed in the electricity sector… The approach of building infrastructure to meet supply at almost any cost can now change. New technology enables the power system to operate at a much higher level of efficiency. The productivity of the power system increases… With smart charging of EV a massive increase in electricity infrastructure for EV charging may not be needed – at least for the light fleet. For example, on the Orion network there is enough spare capacity to enable charging of some 300,000 EV at off peak times[…].[76]

5.52 Stakeholders have also raised the issue that the regime may not provide incentives to invest in non-traditional distribution solutions (eg, a microgrid or solar and battery installation) where such a solution is more economic than a traditional one (eg, poles and wires).[77] This would result in inefficient investment. The issue appears to be the way the regime treats costs, and whether this leads to suppliers comparing the full costs of the non-traditional solution (including energy generation plus retailing) against just the costs of the 'poles and wires'.

5.53 While unrelated to PQ regulation or electricity lines, we are canvassing the issue of treatment of non-systematic risks allocation for airports, and the COVID-19 pandemic impact specifically. Wellington Airport submitted in response to our open letter:[78]

> It is not necessarily the case that the WACC IM (and in particular the asset beta) will need to be changed (although that should be considered). However, as it did for fibre services, the Commission should be open to considering airports face unsystematic risk that is not fully compensated by the WACC IM and, if so, what mechanisms may be appropriate to compensate airports for that risk (whether ex ante or ex post, or both).

Invitation to make a submission

5.54 To what extent do you agree that efficiency and innovation, and the pace required to lift performance in those areas, are potential issues for all EDBs? To what extent are these potential issues for Transpower?

5.55 We welcome evidence of the role that efficiency and innovation performance have played in the significant expenditure increases by EDBs and Transpower since 2008.

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[76] Commerce Commission "SolarZero response to 29 April open letter" (28 May 2021) p.1, 3 and 7.

[77] See sections 107 and 108(4) of the Electricity Industry Act 2010.

[78] Commerce Commission "Wellington Airport Response to 29 April Open Letter (31 May 2021), page 3.

5.56 What role do you see the IMs playing (alongside other regulatory tools) to incentivise improvements in efficiency and innovation performance?

5.57 To what extent do you agree that changes to incentive mechanisms in the IMs (such as opex IRIS) should be informed by evidence of their effectiveness? And if the evidence were insufficient to reach a conclusive view, to what extent do you agree that the IMs should only provide for the relevant incentive mechanisms, while the implementation details are determined at PQ resets?

5.58 Independently of the evidence base on the effectiveness of incentive mechanisms in the IMs, and considering the role of certainty, to what extent do you consider that the IMs should only provide for the relevant incentive mechanisms, while the details are determined at PQ resets?

5.59 Is the current allocation of risks and rewards between consumers and suppliers appropriate and effective in driving innovation in line with the Part 4 purpose? If not, how should it change?

5.60 To what extent do the IMs limit the form or scope of innovation in a way that is not in the long-term interests of consumers consistent with the Part 4 purpose in s 52A?

5.61 In relation to pandemic risks (a kind of type I asymmetric risk) for airports services:[79]

5.61.1 to what extent do you agree that pandemics are a non-systematic risk that should be dealt with outside the WACC?;

5.61.2 what are your views on how this risk was allocated prior to the COVID-19 pandemic, and should be allocated going forward?;

5.61.3 what are your views on the extent of asymmetry of this risk?;

5.61.4 given your views on past risk allocation, to what extent do you think our regime should recognise and provide for airports to target higher revenues than they otherwise would, to compensate for the impacts of the COVID-19 pandemic on their business?; and

5.61.5 given your views on future risk allocation, to what extent do you think our regime should recognise and provide for airports to target higher revenues than they otherwise would, to compensate for potentially bearing the risks of future non-systematic risks that are asymmetric and significant?

[79] Commerce Commission "Airports Input Methodologies Reasons paper (December 2010), section E12.

Outcomes and issues in the market for gas pipeline services

What is the topic area?

5.62 The aim of this section is to summarise the same outcomes as above, but in the market for gas pipelines services (**GPBs**), including gas distribution businesses (**GDBs**) and the gas transmission business (**GTB**). We also ask stakeholders for feedback on our identified issues and any other issues affecting gas pipeline services we should consider as part of the IM Review.

5.63 Most of the content in this section comes from our December 2021 "Trends in gas pipeline business performance" publication.[80]

Key findings on market outcomes

5.64 Industry revenues have been broadly stable, while growing GDB customers meant average GDB prices have fallen by $75 per customer on average in real terms since 2014.

5.65 Service quality has tended to improve, based on the metrics that we monitor.

5.66 Expenditure (including investment) has increased both for the GTB and GDBs.

5.67 We have little information on the efficiency and innovation performance of GPBs. We have not assessed the innovation performance of GPBs in the period under investigation, and it is hard to deduce based on the information available.

5.68 Profitability has declined. The rates of return for GDBs and the GTB were generally in line with our estimates of their reasonable rate of return adjusted for ex-post inflation, suggesting that they have generally not made excessive profits over the last seven years.

5.69 Perhaps the biggest issue facing GPBs is forward looking: long-term demand risk and the associated stranding risk that result from our transition to a low emissions economy. We discuss this issue in the section in this chapter titled "Long-term demand risk".

What issues have been raised on this topic for consumers and suppliers?

5.70 Apart from long-term demand risk and the associated stranding risk, (discussed in the relevant section below), the only other issue we are aware of that has been raised is that of preserving the option of using gas infrastructure to transport zero/low carbon gases.

5.71 In its submission to our open letter, First Gas considered that the "regulatory settings for GPBs should encourage innovation and support the introduction of zero carbon gases to support New Zealand's transition to net zero emissions."[81]

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[80] Commerce Commission "Trends in gas pipeline business performance" (15 December 2021).

[81] Commerce Commission "First Gas Limited Response to 29 April Open Letter" (28 May 2021), page 12.

5.72 They submitted that we should:

> Provide clarity on regulatory treatment of expenditure on zero carbon gas trials and assets […]
>
> Provide GPBs with specific funding to promote "repurposing" of the gas networks… greater regulatory incentives would help to encourage innovation within the gas sector at a level beyond small-scale trials… we support extending the concept of this allowance [the innovation allowance available to EDBs] to GPBs but do not believe the scope (or size) of the EDB allowance is likely to drive much additional innovation.

5.73 On the first point, we provided clarity in our Gas DPP3 draft decision, where we explained that expenditure (including R&D costs) for alternative gases (eg, biogas and hydrogen) cannot be attributed to the regulated service. For example, the Part 4 regime cannot facilitate the recovery of the costs of conveying any gas other than natural gas, unless the gas conveyed contains a blend of natural gas with a relatively small proportion of other gases. Firms can still carry out investigations and invest in the conveyance of alternative gases, but that cost would be part of establishing a new service and cannot be recovered through lines charges from consumers of natural gas.[82]

5.74 On the second point, we considered in our Gas DPP3 draft decision that while a specific innovation allowance for conveying gases other than natural gas appears to be beyond the scope of Part 4, we could potentially allow expenditure for investigating gas blending and how this may affect suppliers' pipelines and consumers' appliances.[83] However, we did not include any allowance for this in our draft decision, as we did not have evidence from suppliers as to the amount of expenditure that could reasonably be allowed for such investigations.

Invitation to make a submission

5.75 Are we missing any other issues affecting gas pipelines consumers or businesses that we should consider as part of the IM Review?

Incentive mechanisms to improve expenditure efficiency for Electricity Distribution Businesses and Transpower

What is the topic area?

5.76 This topic area explains at a high level how our IMs incentivise non-exempt EDBs and Transpower to improve expenditure efficiency gains through our efficiency incentive mechanisms and, in line with section 52A(1)(c), how these efficiency gains are shared with consumers.

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[82] Commerce Commission "Default price-quality paths for gas pipeline businesses from 1 October 2022 Draft reasons paper" (10 February 2022), page 43.

[83] Commerce Commission "Default price-quality paths: Gas DPP3 - draft DPPs for gas pipeline businesses from 01 October 2022 - Draft Reasons paper" (10 February 2022), page 63.

Background

5.77 The IMs' expenditure incentives are generally focused on cost efficiency and providing suppliers with a constant incentive to reduce costs over time. The opex IRIS mechanism is set out in the IMs for EDBs and in the Transpower IMs. The key mechanisms of the capex IRIS for EDBs are set out in the IMs (apart from the capex incentive rate which is determined at the time of a price-quality path), and for Transpower the capex incentive mechanisms (including the incentive rates) are set out in the Transpower capex IM.

5.78 The opex IRIS and capex IRIS apply to all non-exempt EDBs during a price-quality path. There is also an IRIS applying to Transpower for opex and incentives for capex investment and savings depending on the type of capex.[84] There is no IRIS mechanism for either opex or capex applying to gas distribution businesses or gas transmission businesses. Table 7 outlines the efficiency mechanisms applying to each sector.

Table 7: Overview of efficiency incentive mechanisms

	EDBs (DPP)	EDBs (CPP)	Transpower (IPP)	GPBs
Opex	Opex IRIS	Opex IRIS (including baseline adjustment term)	Opex IRIS (including baseline adjustment term)	NA
Capex	Capex IRIS	Capex IRIS	Base capex incentive mechanism Major capex incentive mechanism	NA

5.79 The expenditure incentives are related to the quality incentives and standards placed upon regulated suppliers, because one way for regulated suppliers to reduce costs and increase profits is to reduce quality of service. The quality standards and incentives are determined during a DPP, CPP or IPP price-quality reset and so are not discussed here as part of the IM Review. However, we can still assess whether our expenditure incentives appear to be having an impact on the quality outcomes of regulated suppliers.

[84] Commerce Commission "Transpower capex input methodology review Decisions and reasons" (29 March 2018), Chapter 2: Incentive mechanisms.

Why do we have specific incentive mechanisms?

5.80 The opex IRIS mechanism was originally introduced to help address an issue that occurs when price-quality paths are reset at periodic intervals. In the absence of an IRIS mechanism, the strength of the incentive on regulated suppliers to reduce costs declines across a regulatory period, as suppliers can only retain the benefit until the price-quality path is next reset (and those efficiency gains are shared with consumers). We refer to the declining incentive under a price path over the regulatory period as the 'natural incentive'.

5.81 Having an IRIS mechanism creates a focus on making efficiency savings when they are identified rather than optimising the timing of expenditure under the natural incentive. This is in the long-term interests of consumers, consistent with the Part 4 purpose in s 52A, as regulated suppliers should be making efficiency savings when they are identified (and passed back to consumers) rather than deferring savings until the next regulatory period.

5.82 In addition to controlling suppliers' incentive to defer savings, there are some other key reasons for having an IRIS mechanism:

5.82.1 Without an IRIS mechanism, suppliers are subject to the natural incentive present under price-quality regulation. Having an IRIS allows us to vary the strength of incentives to reduce costs over a regulatory period.85

5.82.2 Having an IRIS mechanism allows us to control the relative incentive rates on opex and capex. Without an IRIS mechanism there may be significantly different incentive rates between opex and capex which could lead to an inefficient preference for one type of expenditure over another.

5.82.3 An issue that is inherent in price-quality regulation is the fact that suppliers have an incentive to inflate outturn costs in the 'base year' (ie, the year that we base our future expenditure forecasts off).86 The IRIS helps to mitigate this risk because it will treat any increase as a negative saving and offset the difference going into the future.

5.83 The capex incentive mechanisms (capex IRIS, Transpower base expenditure incentive mechanism, Transpower major capex incentive mechanism) are also designed to provide suppliers with an incentive to make cost savings over time, but operate in a slightly different way due to:

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85 A relatively higher incentive rate is appropriate where we have reasonable confidence in the forecasts used to set price-quality paths, and there is scope for suppliers to control costs, whereas a lower incentive rate is more appropriate in situations where we have less confidence in forecast spend, and/or suppliers have less scope to control costs.

86 There may also be other ways of mitigating this issue such as using the baseline expenditure over a number of years (rather than just having one base year), although this means that the most recent year of relevant information and potential efficiencies achieved are given less weight.

5.83.1 differences in the way that capex is recovered over time, ie, through a return on and of capital; and

5.83.2 the fact that capex efficiency gains in one year are unlikely to have a direct bearing on efficiency gains in subsequent years.

What issues have been raised on this topic for consumers and suppliers?

5.84 With the anticipated increase in expenditure to support electrification, efficiency of energy networks is as important as ever—if not more—for protecting consumers from unnecessary bill increases or unwanted quality of service.

Are the IMs' incentive mechanisms working?

5.85 Our overview of market outcomes raises questions on whether EDBs' efficiency performance has been consistent with promoting the Part 4 purpose. If established, this could indicate that the incentives to improve efficiency need to be reviewed, changed or strengthened.

5.86 Independently of past performance, we consider that there is a clear need for a concerted effort to rapidly improve efficiency (and accelerate innovation) to make a less costly transition to increased electrification than under business as usual.

5.87 How we set forecast allowances for regulated suppliers is also relevant. However, this is determined as part of a DPP/IPP (or CPP) reset. A relevant consideration could be whether incentive rates for the opex IRIS are defined through the IMs or as part of setting a price-quality path (taking into account the confidence that we have in expenditure forecasts and analysing historical spend and efficiency).[87]

5.88 As part of our most recent EDB DPP3 reset, we analysed the IRIS outcomes from expenditure outturns during EDB DPP2.[88] We found that during EDB DPP2:

5.88.1 For opex: there was not a clear trend as to whether distributors had under- or overspent in comparison to the opex allowances. There were, however, a few large individual negative IRIS revenue adjustments from distributors that had overspent during EDB DPP2.

5.88.2 For capex: there was a mix of distributors over- and under-spending their capex allowances (although more EDBs overspending than underspending and to a larger extent). The general trend across most EDBs was overspending the capex allowance by relatively more towards the end of EDB DPP2 compared with earlier in the period.

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[87] We note that currently the opex incentive rate changes from one price-path to another through the changes in the WACC (though the calculation methodology is defined in the IMs). However, we could make decisions around incentive strength at the time of a reset rather than it being set in the IMs.

[88] Commerce Commission "Default price-quality paths for electricity distribution businesses from 1 April 2020 – Final decision Reasons paper" (27 November 2019), Attachment E.

5.89 In a personal submission on our draft EDB DPP3 reset decisions, Pat Duignan considered that the opex incentive rate in EDB DPP2 has not been high enough to elicit opex efficiency savings during DPP2.[89] In its cross-submission on our draft EDB DPP3 reset decisions, ENA responded to Mr Duignan's submission rejecting the assertion that the opex incentive scheme has been ineffective during EDB DPP2.[90]

5.90 Vector, in its open letter response, noted:[91]

> The incentives of the multi-year regulatory period provide minimal incentives for distributors to prioritise investments requiring longer than five years to realise efficiency gains, resulting in reduced innovation and non-traditional investment. There are insufficient incentives for distributors to prioritise investments involving sharing of costs and value across the supply chain. This deters innovation and non-traditional investment, particularly where the investment requires a distributor to incur upfront costs, has an extended period to realise savings, requires a change to operating practices and involves relying on other parties.

5.91 Vector also recommended that we consider the use of specific non-wire alternatives incentives to specifically encourage EDBs to implement these alternative solutions, rather than the use of traditional investments.[92]

5.92 In its submission on our draft EDB DPP3 reset decisions, Unison supported our draft decision to broadly neutralise incentive rates between opex and capex, as increasingly non-wire alternatives will become available to distributors which can effectively substitute opex for capex. Unison suspects that it is necessary to move to a 'total expenditure rather than separately determining capex and opex' **(Totex)** regime to fully achieve this and notes that the current settings of the allowances continue to favour capex over opex, because opex is based on historical performance whereas capex is forward-looking.[93, 94]

5.93 In its response to our open letter in 2021, Powerco suggested that we review the incentive mechanisms in the regime to ensure opex/capex trade-offs are workable and avoid arbitrary windfall gains and losses due to forecasting error.[95]

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89 Pat Duignan "Submission on EDB DPP reset draft decisions paper" (18 July 2019), p. 3 - 4.

90 ENA "Cross submission on EDB DPP reset draft decisions paper" (12 August 2019), p. 3.

91 Vector "Vector Submission to the Commerce Commission's Open Letter on the Input Methodology Review, Gas Pipeline Business Reset and Information Disclosure Review" (May 2021), p. 18.

92 Vector "Vector Submission to the Commerce Commission's Open Letter on the Input Methodology Review, Gas Pipeline Business Reset and Information Disclosure Review" (May 2021), p. 22.

93 Totex regimes (total expenditure rather than separately determining capex and opex) are implemented overseas (for example, Ofgem) and typically provide incentives that are consistent across all types of expenditure. Our approach to equalising capex and opex incentive rates as part of the EDB DPP was intended to achieve some, but not all, of the incentives benefits of a 'totex' regime.

94 Unison "Submission on EDB DPP reset draft decisions paper" (18 July 2019), p. 19.

95 Powerco "Submission to the Commerce Commission's open letter on fit-for-purpose regulation of energy networks" (28 May 2021), p. 6.

5.94 The way that the opex IRIS is specified in the IMs means that the opex incentive rate mechanistically changes at each reset (as it is tied to the WACC). Additionally, the effective opex incentive rate inherent in IRIS is fixed in the IMs for non-exempt EDBs and Transpower. However, the capex incentive rate is determined by us as part of the price-quality path reset.

5.95 Therefore, although the incentive rate for savings will be constant across a period, there will be variations in incentive rates between regulatory periods. This could potentially lead to incentives on suppliers to shift timing of expenditure and we may want to consider this further as part of the current review. This has also been raised by stakeholders.[96]

Different incentives for different types of expenditure

5.96 We have previously had suggestions for different types of expenditure categories to have different incentive strengths/rates – or for some expenditure categories to not be part of an incentive scheme.

5.97 As part of the EDB DPP3 reset, some distributors considered that we should consider different incentive rates applying to different categories of capex. Unison suggested that:[97]

> As variations in customer capex are likely to be driven more by the volume and size of customers seeking connections, than variations in efficiency in connecting customers, we question the validity of the 26% capex IRIS adjustment. It is unclear what policy reason exists that either EDBs or existing customers should bear the volume/size risks on customer capex, compared with an approach of simply providing a wash-up that makes EDBs and existing customers neutral to the volume/size of customer connections.

5.98 Some EDBs also suggested removing consumer connection, system growth and asset relocation expenditure from capex IRIS calculations to remove incentives for distributors to alter the timing and quantum of customer-initiated capex, so that customers connections are not distorted.[98]

Discount factor used in the current IRIS mechanism

5.99 Mr Duignan, in his submission on the DPP3 reset, considered that the midpoint level of the WACC (50th percentile) should be used rather than the 67th percentile for the discount rate used in calculating the strength of the relevant IRIS and WACC incentives.[99]

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96 For example, see Powerco "Submission on EDB DPP reset draft decisions paper" (18 July 2019), p. 20.

97 Unison "Submission on EDB DPP reset draft decisions paper" (18 July 2019), para 57.

98 For example, see Powerco "Submission on EDB DPP reset draft decisions paper" (18 July 2019), p. 18.

99 Pat Duignan "Submission on EDB DPP reset draft decisions paper" (18 July 2019), p. 2.

5.100 Mr Duignan also suggested that we provide a view on whether a post-tax WACC should be used (rather than the vanilla WACC that we currently use) as the relevant discount rate in the opex IRIS:[100]

> It is possible, depending on the exact way tax is treated in the operation of the Opex IRIS, that the post-tax WACC rather than the vanilla WACC could be the relevant discount rate to use in assessing a distributor's incentives regarding expenditure decisions. I hope that the Commission will provide its view on this issue.

Complexity of the IRIS mechanism

5.101 There have been concerns raised about the complexity of the IRIS mechanism (particularly for opex savings related to Transpower's IPP). The concept and workings of the IRIS mechanism, even in its most basic form, are difficult to understand. We are concerned that some regulated suppliers may not fully understand the incentives applying to them. This raises the risk that if a supplier does not understand the incentive, it may not respond to it in the intended way.

5.102 In its response to our open letter in 2021, Powerco states that the IRIS "appears to create confusion rather than resolve it".[101]

5.103 In its response to our 2021 open letter, Transpower noted the difficulty in calculating the opex IRIS baseline adjustment term.[102] The baseline adjustment term is designed to ensure that incentives are correctly applied between regulatory control periods (**RCPs**) so that Transpower is not over- or undercompensated for efficiencies achieved in the base year of an RCP. This is necessary because of the way that Transpower's opex allowance is calculated.

5.104 Transpower noted in its submission on the determination of the specification of the Transpower IRIS parameters the complexity and uncertainty resulting from the IRIS baseline adjustment term (**IBAT**) process. It states:[103]

> While we will always seek to act in both a principled way and seek business efficiencies, the draft IBAT decision would penalise us for such initiatives. This is not in the long-term interests of consumers because it deters furthering such efforts. In addition, we are left in a position where revenue path uncertainty will provide forecast uncertainties in our key ratings-sensitive credit metrics.

Opex IRIS baseline adjustment term

5.105 We intend to review the effectiveness of, and incentives created by, the baseline adjustment terms for Transpower's opex IRIS as well as for a CPP for EDBs. These adjustment terms are complex and can have material impacts on suppliers' revenues and incentives.

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[100] Pat Duignan "Submission on EDB DPP reset draft decisions paper" (18 July 2019), p. 2.

[101] Powerco "Submission to the Commerce Commission's open letter on fit-for-purpose regulation of energy networks" (28 May 2021), p. 6.

[102] Transpower "Transpower response to 29 April open letter" (28 May 2021), p. 10.

[103] Transpower "Submission on IRIS baseline adjustment term" (21 August 2019), p. 12.

5.106 The mechanisms have now been applied in practice through the IPP (for Transpower) and most relevantly for Aurora's CPP (for EDBs).[104] We are interested in stakeholders' views on engaging with these processes and the impacts on consumers and suppliers.

Have we previously looked at this topic or these issues?

5.107 We previously reviewed the IRIS mechanisms applying to EDBs and GPBs leading up to the 2016 IM review.[105]

5.108 Subsequently, we reviewed Transpower's IRIS (for opex) in 2017.[106] We also reviewed Transpower's capex incentive mechanisms in our final decisions on the capex IM review in 2018.[107]

5.109 As previously mentioned, as part of our most recent EDB DPP3 reset we analysed the IRIS outcomes from expenditure outturns during EDB DPP2.[108] We responded to some of the above issues as part of these decisions but noted that some issues raised were related to the IMs and we would review these as part of this IM Review process. For example, the opex and capex IRIS mechanisms are defined in the IMs, and the resulting opex incentive rate is a function of the formulas in the IMs, whereas the capex retention factor (the incentive rate applying to capex savings) is part of the DPP reset.

5.110 We determined Transpower's opex incentive amount as required under the Transpower IM determination in 2019.[109] This involved applying judgement in assessing the opex savings that Transpower achieved during RCP2.

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[104] Commerce Commission "Transpower Individual Price-Quality Path from 1 April 2020 – Companion paper to final RCP3 IPP determination and information gathering notices" (14 November 2019), Chapter 4; and Commerce Commission "Decision on Aurora Energy's proposal for a customised price-quality path – Final decision" (31 March 2021), Attachment F.

[105] Commerce Commission "Input methodologies review decisions – Report on the IM review" (20 December 2016), Chapter 9.

[106] Commerce Commission "Input methodologies review final decision – Transpower Incremental Rolling Incentive Scheme" (29 June 2017).

[107] Commerce Commission "Transpower capex input methodology review – Decisions and reasons" (29 March 2018), Chapter 2.

[108] Commerce Commission "Default price-quality paths for electricity distribution businesses from 1 April 2020 – Final decision Reasons paper" (27 November 2019), Attachment E.

[109] Commerce Commission "Transpower Individual Price-Quality Path – Companion paper to final RCP3 IPP determination and information gathering notices" (14 November 2019), Chapter 4.

5.111 In response to the change in accounting standards for operating leases (NZ IFRS 16), we made decisions on how this would impact our regulations and specifically the efficiency incentive mechanisms.[110] Our decision was to continue to treat operating leases as opex for the purposes of IRIS even though these are now treated as capex under generally accepted accounting practice in New Zealand (**GAAP**).

Is there overseas experience that could help address these issues?

5.112 The Australian Energy Regulator (**AER**) is currently undertaking a review of its incentive schemes for networks.[111] The AER's efficiency benefit sharing scheme and the capital expenditure sharing scheme are very similar to our opex and capex IRIS, so the findings of the review will likely be relevant to our incentive regime.

5.113 Ofgem applies a 'totex incentive mechanism' to its total expenditure allowances, which shares over- and under-spends with consumers.[112] It applies a blended confidence-dependent incentive rate to suppliers based on the proportion of baseline totex considered to be high confidence (applied at a 50% incentive rate) and all other baseline totex (applied at a 15% incentive rate).[113]

What could possible IM changes be?

5.114 If we find that our efficiency incentive mechanisms for opex and capex are not driving efficiencies (and therefore eventual savings to consumers, consistent with section 52A(1)(c) of the Part 4 purpose), we can reconsider: the incentive strengths for opex and capex; whether incentive rates should be determined at the time of a price-quality path reset; whether different incentive rates should be applied to different expenditure categories; or whether the incentive strength should be set in the IMs or as part of our reset decisions.[114]

5.115 We could consider alternative incentive mechanisms that encourage suppliers to manage demand rather than build more network capacity, when this is the more efficient thing to do.[115]

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[110] Commerce Commission "Treatment of operating leases – Final decisions paper" (13 November 2019), p. 4.9 - 4.17.

[111] AER "Review of incentive schemes for networks – Discussion paper" (December 2021).

[112] Ofgem "RIIO-2 Final Determinations - Core Document" (08 December 2020), p 10.2 - 10.14.

[113] The resulting incentive rate applying to totex for each supplier is given by:
Incentive rate (%) = [50% * confidence metric] + [15% * (1-confidence metric)]

[114] We have previously considered whether different categories of capex should have different incentive rates applied. Commerce Commission, "Default price-quality paths for electricity distribution businesses from 1 April 2020 – Final decision reasons paper" (27 November 2019), E81; and Commerce Commission, "Default price-quality paths for electricity distribution businesses from 1 April 2020 – Draft reasons paper" (29 May 2019), E38 to E43.

[115] We are aware of a scheme that rewards (penalises) low (high) differentials between peak and base demand.

5.116 Another option could be to simplify the IRIS mechanism or provide more information on how it works.

5.117 We could consider introducing a totex approach to setting allowed revenues, which in principle should encourage suppliers to make more efficient opex-capex tradeoffs.

5.118 The current incentive schemes broadly work by financially rewarding suppliers when they achieve efficiencies. However, some suppliers may have less of a focus on maximising profits (eg, community-owned EDBs), and therefore may not respond as strongly to financial incentives.

5.119 If it was established that the current incentive schemes have not been driving efficiencies, then there are alternative ways—in addition to trying to fix the schemes—to ensure consumers benefit from efficiency gains (the IMs may not be the tool to implement them):

5.119.1 ex-ante, we could do more work to be more confident on only allowing efficient forecast expenditure into the building blocks used to determine allowed revenues;

5.119.2 ex-post, we could use tools such as ex-post efficiency assessments to ensure consumers only pay for efficient capital expenditure;[116] and

5.119.3 enhancing the focus on efficiency through information disclosure.

What further information is needed to advance our thinking?

5.120 We are interested in the views of stakeholders on the effectiveness of the current efficiency mechanisms. Specifically, we invite submissions on:

5.120.1 What evidence is there that IRIS and other expenditure incentive mechanisms are driving capex and/or opex efficiency improvements?

5.120.2 To what extent have we designed the mechanisms properly, to give effect to the desired incentives?

5.120.3 What alternative mechanisms could be implemented to achieve the intended outcomes with less complexity?

5.120.4 To what extent do suppliers understand the efficiency incentive mechanisms (and the outcomes that they are intended to achieve)?

5.120.5 Are they willing to respond to them?

5.120.6 Are they able to respond to them?

5.120.7 If so, how effectively, and at what cost?

[116] Ex-post efficiency reviews have their own risks – they can have a detrimental impact on ex-ante incentives to invest. But if the net effect is likely to be positive, then doing such reviews may better promote the Part 4 purpose.

5.120.8 Has the expected behaviour in response to the mechanisms eventuated? If not, why not?

5.120.9 Is there a bias towards one type of expenditure (opex or capex) due to the incentive mechanisms or other factors? Are the incentives strong enough to be incentivising efficiency savings for each type of expenditure?

5.120.10 IRIS sets marginal incentive rates for regulated suppliers, but suppliers may make spending decisions based on overall budgets and/or targets, rather than based on incremental capex/opex. Others might have internal hurdle rates for investment decisions that are higher than WACC. How does having a marginal incentive rate impact on a supplier's expenditure decisions?

5.120.11 Do stakeholders have other issues or opportunities relevant to the efficiency incentive mechanisms currently defined in the IMs? Have we captured the key stakeholder issues?

5.120.12 There are suppliers, such as community-owned EDBs, that may not have profit-maximising motives. Are there other ways of incentivising these suppliers that may not respond to financial incentives (eg, benchmarking)?

Form of control (short-term demand risk)

What is the topic area?

5.121 This topic area is about the 'form of control' that is used to cap revenues or average prices under price-quality regulation, and the potential issues in reviewing our current approach. These are defined in the 'specification of price' IMs for each sector under Part 4.

5.122 Part 4 provides us with a broad discretion to shape the form by which revenues or prices are constrained under price-quality regulation.

5.123 In practice, we have developed IMs that specify the form of control for each service and have primarily considered whether to apply a revenue cap or a 'weighted average price cap' (**WAPC**). The decision on whether we limit maximum prices or revenues is determined by the IMs and depends on the type of service provided:

5.123.1 non-exempt EDBs, the GTB and Transpower are subject to a revenue cap (with a wash-up of under- or over-recovery of revenue); and

5.123.2 GDBs are subject to a limit on their maximum average price (a WAPC).

5.124 Under either a revenue cap or a WAPC approach, we determine the maximum allowable revenue (**MAR**) based on anticipated expenditure during a regulatory period:

5.124.1 Under a revenue cap, suppliers are allowed to set prices as they see fit but cannot exceed the revenue cap (except to the extent of a wash-up of previously under-recovered revenue).[117]

5.124.2 Under a WAPC, we combine MAR with our own demand forecasts to set a weighted average price path that suppliers must not exceed.

5.124.3 At the time of the price reset, expected revenue over the regulatory period will be the same under both forms of control.

What issues have been raised on this topic?

5.125 The choice between revenue caps or WAPCs can have an impact on the variability and predictability of consumer prices and suppliers' revenues. Within a regulatory period, the revenue or price risk associated with the difference between actual and forecast demand (demand risk) is allocated to suppliers under a WAPC, and to consumers under a revenue cap:[118]

5.125.1 a WAPC provides within-period average price stability for consumers, but suppliers are exposed to the risk of over- or under-recovery of revenue; and

5.125.2 in contrast, a revenue cap provides within-period revenue stability for suppliers, but it may lead to more price volatility for consumers within the price control period.

5.126 This means that, in the short-term, an unforecasted decline in demand would be a cost to suppliers under a WAPC, but those costs could be shared with or passed to consumers under a revenue cap. However, over the life of the assets, long-term demand risk mostly remains with consumers under current settings (see next section).

5.127 In its response to our 2021 open letter, Vector recommended that:[119]

5.127.1 we consider alternative forms of control for GDBs, such as a revenue cap, to limit the judgement that we have around future real revenue growth for Gas DPP3; and

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[117] EDBs and Transpower will have to also comply with any pricing requirements issues by the EA.

[118] Either approach can be modified to avoid allocating all within period demand risk to consumers or suppliers. Caps on price increases (such as those applicable to EDBs) could be used to minimise within period price volatility under a revenue cap. Or under a WAPC price cap, price reopeners could be allowed within a period if actual demand diverges from our forecasts, beyond a predetermined threshold. These approaches can be used to avoid extreme gains or losses to suppliers or consumers under each approach, at the cost of additional complexity.

[119] Vector "Vector Submission to the Commerce Commission's Open Letter on the Input Methodology Review, Gas Pipeline Business Reset and Information Disclosure Review" (May 2021), p. 30–31.

5.127.2 if we continue to apply a WAPC for GDBs, then we should adopt a constant price revenue growth that reflects the uncertainty and expected challenges for connection take-up over the Gas DPP3.

Have we previously looked at this topic or these issues?

In the 2016 IM review we changed the form of control for EDBs

5.128 In the 2016 IM review we examined in detail the form of control for EDBs.[120] There were three key problems which we identified in relation to the WAPC for EDBs. These were that:[121]

5.128.1 suppliers were exposed to the quantity forecasting risk which can be unmanageable and may provide disincentives for efficient expenditure;

5.128.2 there may have been a disincentive under the WAPC to pursue energy efficiency and DSM initiatives; and

5.128.3 the price cap and compliance requirements may have created disincentives to restructure tariffs to move from one pricing approach to another.

5.129 We subsequently adopted a 'pure' revenue cap for EDBs which we considered would best resolve the issues discussed above associated with a WAPC.[122]

In the 2016 IM review we retained the form of control for the GTB

5.130 In the 2016 IM review we maintained a revenue cap for the GTB but moved from a 'lagged' revenue cap to a 'pure' revenue cap allowing for wash-up of over- and under-recovery.[123]

In the 2016 IM review we retained the form of control for GDBs

5.131 In the 2016 IM review, we considered changing the form of control for GDBs but ultimately decided to maintain a WAPC (continuing to use lagged quantities).[124]

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[120] Commerce Commission "Input methodologies review decisions – Topic paper 1: Form of control and RAB indexation for EDBs, GPBs and Transpower" (20 December 2016), Chapter 2.

[121] These issues are discussed further in Commerce Commission "Input methodologies review decisions – Topic paper 1: Form of control and RAB indexation for EDBs, GPBs and Transpower" (20 December 2016), p. 28 - 57.

[122] The reasons for our change are discussed further in Commerce Commission "Input methodologies review decisions – Topic paper 1: Form of control and RAB indexation for EDBs, GPBs and Transpower" (20 December 2016), p. 58 - 112.

[123] Commerce Commission "Input methodologies review decisions – Topic paper 1: Form of control and RAB indexation for EDBs, GPBs and Transpower" (20 December 2016), p. 178 - 202.

[124] The reasons for our decisions are discussed further in Commerce Commission "Input methodologies review decisions – Topic paper 1: Form of control and RAB indexation for EDBs, GPBs and Transpower" (20 December 2016), p. 210 - 235.

5.132 Our draft decisions for Gas DPP3 considered form of control but proposed no changes. We are in the process of considering the form of control for gas pipeline businesses in the Gas DPP3. In our draft decision we proposed to retain a weighted-average price cap for GDBs and a revenue cap with a wash-up mechanism for GTBs. We considered that it was not clear that changing the form of control for GDBs or the GTB would better promote the purposes of the gas IMs or Part 4.[125] Our final decision on the Gas DPP3 is due to be published on 31 May 2022.

Is there other experience that could help deal with these issues?

5.133 The form of control is one tool that can affect incentives related to growing demand. For example, a price cap results in more revenue when demand grows. Therefore, it provides incentives on suppliers to grow demand while maintaining incentives for cost efficiency. This is related to the ENA's submission on our decarbonisation workshop, where it recommended that we exclude customer-connection expenditure from the incentive mechanisms as this penalises EDBs for facilitating growth. The ENA also recommended introducing a streamlined re-opener process or direct pass through for customer-connection expenditure.

5.134 As mentioned in paragraph 5.48, the ENA's proposals would effectively exclude customer-connection expenditure from being subject to efficiency incentives.

5.135 Chorus' connection capex mechanism is an alternative solution which maintains efficiency incentives under a revenue cap. In setting our Fibre IMs for Chorus, we recognised that there was likely to be uncertainty around forecasting demand and connection volumes during a regulatory period. Therefore, we split connection capex into two elements:[126]

5.135.1 a baseline allowance that is approved alongside base capex. The connection capex baseline allowance includes connection capex that is regarded as relatively certain to be required over the regulatory period. The Commission determines the connection capex unit costs and connection types when determining the baseline allowance; and

[125] Commerce Commission "Default price-quality paths for gas pipeline businesses from 1 October 2022 Draft reasons paper" (10 February 2022), p. C24.

[126] Commerce Commission "Fibre input methodologies: Main final decisions – reasons paper" (13 October 2020), p. 7.55 - 7.56.

5.135.2 a variable adjustment that represents the difference between the baseline allowance, based on forecast connection volumes, and the actual connection volumes for the regulatory period. The variable adjustment will be based on the same connection capex unit costs used to determine the baseline allowance. The connection capex unit costs are comprised of variable connection costs, which vary linearly with the volume of new end-user connections for each connection type, and non-linear connection costs, which vary with the volume of new end-user connections in accordance with specified non-linear connection cost functions.[127]

What are possible IM changes to address the issue?

5.136 With the expected uncertainty in demand and in the wider energy environment, we must consider whether the current forms of control for the regulated Part 4 sectors remain appropriate and allocate these risks to parties that are best able to manage them. We can consider the views of stakeholders to assess whether changes to the form of control under the IMs would promote the overarching objectives of the IM Review.

What further information is needed to advance our thinking?

5.137 We invite submissions on whether:

5.137.1 Stakeholders consider there are substantial reasons to change the form of control for any of the Part 4 sectors.

5.137.2 Any parts of the revenue cap/WAPC mechanisms require a change for improved implementation.

Longer-term demand risk

What is the topic area?

5.138 This topic area is about assessing whether the current allocation of long-term demand risk between consumers and suppliers resulting from the existing IMs is appropriate in the context of increased long-term demand uncertainty.

5.139 Under the current IMs we use the building block model (**BBM**) to set revenue and price caps for regulatory periods of up to 5 years. The BBM is a way to estimate the efficient costs of providing services and then pass those costs through to current and future consumers.

[127] To account for demand uncertainty the Chorus capex IM requires Chorus to propose unit costs for connections, by connection type, along with a forecast connection volume, at the same time as the base capex proposal. The Commission determines these elements as part of the connection capex baseline allowance.

5.140 With increased demand uncertainty, certain IMs (such as the asset valuation or IRIS IMs) may no longer be fit for purpose. It may be necessary to rethink how we treat fundamental elements of the BBM, particularly in the context of DPPs for electricity and gas businesses which are facing increased long-term demand uncertainty.

Consumers bear most long-term demand risk under the IMs

5.141 Under our regulatory approach to date, consumers have largely borne the risk of long-term demand uncertainty. This is because under the IMs, assets remain in the RAB when capacity exceeds consumer demand rather than becoming 'economically stranded'.

5.142 The expectation that assets will stay in the RAB under most circumstances supports investment incentives in line with s 52A(1)(a) and our *ex-ante* financial capital maintenance (**FCM**) principle. This expectation balances the downside risk of under-recovery with constrained profitability on the upside that comes from capping revenue or average prices.

5.143 Suppliers ultimately bear some risk as our framework only provides for an expectation of FCM where it assists us in promoting the Part 4 purpose. For example, *ex-ante* FCM may not promote the Part 4 purpose if such a large number of customer disconnections means that remaining consumers will not be willing or able to pay the prices that would be required for suppliers to achieve FCM.

5.144 Long-term demand risk allocation is important for consumers because they themselves make significant sunk investments that depend on the regulated service and are impacted by price uncertainty.

5.145 Allocation of demand risk largely to consumers under current IMs means that consumer prices may need to adjust in response to longer-term shifts in demand:

5.145.1 If long-term expectations of demand decrease, then prices may need to increase for current consumers relative to prices for future consumers to maintain a reasonable expectation of FCM (if maintaining *ex-ante* real FCM remains consistent with the s52A purpose).

5.145.2 If long-term expectations of demand increase, then prices may need to decrease for current consumers relative to future consumers to mitigate the potential for excessive profits.

Changes to the profile of depreciation manage long term risk under current IMs

5.146 Changes to the long-term profile of depreciation when setting price paths are the current—NPV-neutral with respect to the WACC—means outlined in the IMs to adjust revenue expectations in response to shocks to expectations of future demand and to address the associated risk of economic network stranding.

5.147 When we first developed the IMs for EDBs and GPBs in 2010, suppliers could only apply for an alternative depreciation profile under a CPP. For DPPs, the IMs required that the RAB be returned to suppliers over assumed physical asset lives by straight-line depreciation. Physical asset lives reflected the likely economic lifetime of assets given long-term expectations of relatively stable demand growth and so this was a proxy for economic depreciation.[128]

5.148 Consequently, with relatively stable demand growth, the use of physical asset lives and straight-line depreciation means the BBM can be implemented in a way which focuses primarily on each regulatory period in isolation, with little attention given to potential future changes in supply and demand conditions.

5.149 However, since 2016, it has become clear that there are risks that economic asset lives may be shorter than physical asset lives for both EDBs and GPBs. We changed the IMs for EDBs in 2016 to allow for the possibility of reduced asset lives in DPPs to address economic network stranding risk. More recently in the current Gas DPP3 reset, we proposed changing IMs to allow adjustments to assets lives in setting a DPP after we identified a risk of economic network stranding under existing physical asset lives.[129]

5.150 Changes to depreciation address the risk of economic network stranding for suppliers, but consumers continue to bear long-term demand risk and potential price uncertainty.

We could change IMs to address long-term demand risk allocation

5.151 We consider there are three types of IM changes that, provided they promote one or more of the overarching objectives of the IM Review, we could make that relate to long-term demand risk allocation:

5.151.1 Changes that are consistent with *ex-ante* real FCM and mitigate suppliers' exposure to material downside risk of under recovery – eg, further changes to IMs affecting depreciation. This implies leaving long-term demand risk largely with consumers.

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[128] Economic depreciation can be defined as the period-by-period change in the market value of an asset. The market value of an asset is equal to the present value of the income that the asset is expected to generate over the remainder of its useful life.

[129] Commerce Commission "Proposed amendments to input methodologies for gas pipeline businesses related to the 2022 default price-quality paths Draft reasons paper" (10 February 2022).

5.151.2 Changes that are consistent with *ex-ante* real FCM, but leave suppliers exposed to material downside and upside risks that may require compensation – eg, if we set IMs that provide for the RAB to be written down and the risk was asymmetric to the downside, we could continue to provide suppliers with an expectation of FCM and associated investment incentives by compensating suppliers with a risk premium – in effect allowing higher profits to compensate for the risk of partial capital recovery. This implies relocating some long-term demand risk to suppliers and greater price stability and/or certainty for consumers.

5.151.3 Changes that are consistent with our draft IM review framework, but not with our *ex-ante* real FCM principle - eg, changes where the RAB is written down due to a 'tipping point' and compensation *ex ante* or *ex post* is simply not possible.[130] For example, if mass disconnections meant that remaining customers are not willing or able to pay the prices that would be required for suppliers to achieve FCM. This example would not reallocate long-term demand risk as suppliers would already be exposed to such risk.

5.152 For the current IM Review, we propose to focus our attention on GPBs. However there may also be merit in allocating more long-term demand risk to EDBs. For example, some stakeholders have submitted that electrification will require significantly more investment ahead of demand. It may promote the Part 4 purpose to expose suppliers to more of the stranding risk associated with these investments, as this would strengthen incentives for efficient investment.

5.153 *Ex-ante* compensation mechanisms provide consumers with insurance against future price shocks due to demand shocks, while explicitly exposing suppliers to the risk that assets may be economically stranded in the future. Once compensation mechanisms are set, this would reduce the need to focus on demand risk allocation between current and future consumers in DPPs or CPPs and provide consumers with more long-term price certainty.

5.154 In our Fibre IMs, we included an *ex-ante* allowance to compensate Chorus for bearing some stranding risk, along with protecting consumers from price shocks where stranding occurs.[131]

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[130] In Gas DPP3, a stakeholder has argued that the standard justification for real ex-ante FCM is no longer valid for the gas pipeline distribution service. Munro Duignan "Munro Duignan Submission on Gas DPP3 draft decision 14 March 2022"

[131] Commerce Commission "Fibre input methodologies: Main final decisions – reasons paper" (13 October 2020), page 541.

What issues have been raised on this topic for consumers and suppliers?

5.155 Allocation of long-term demand risk primarily to consumers may continue to support the section 52A purpose of Part 4 in most cases. However, this may not always be the case – there are costs and benefits of this risk allocation which may vary depending on the circumstances.

Benefits and costs of allocating long-term demand risk to consumers

5.156 Allocating long-term demand risk to consumers means that consumers are exposed to a degree of long-term price uncertainty. If demand diverges significantly from expectations, then it may be necessary to change the long-term depreciation profile to efficiently manage demand risk between current and future consumers in a way that maintains an expectation of FCM.

5.157 An observable outcome of this risk allocation is that regulated prices may increase when demand unexpectedly declines and decrease when demand unexpectedly increases. This may not promote the Part 4 purpose.

5.158 Unexpected decreases in demand raise the following potential issues:

5.158.1 Consumer demand may be suppressed if there are consumers that are not willing to pay the prices suppliers are allowed to set but are willing to pay enough to cover incremental costs of maintaining services.[132]

5.158.2 It may also have a chilling effect on consumer investment decisions to invest in appliances or production processes which rely on the regulated service.

5.159 Furthermore, it may not promote the Part 4 purpose for prices to decrease if long-term demand expectations unexpectedly increase. This may increase demand for the service at a time when demand is already strong. If the regulated service is subject to capacity constraints, the regulated price might fall at precisely the time when it may be necessary to efficiently ration scarce capacity by raising the price.

5.160 The primary benefit to consumers of being allocated demand risk is that consumers are not required to pay a risk premium for suppliers to manage the risk. Any such risk premium is likely to be difficult to accurately estimate, and so add regulatory costs.

[132] Tariff restructuring can help as suppliers can choose different tariff structures for different consumers in order to maintain demand (eg set low or no fixed charges for some consumers and higher fixed charges for other consumers).

Benefits and costs of allocating long-term demand risk to suppliers

5.161 We could consider exposing suppliers to increased long-term demand risk. In practice—and to the extent that the risk is asymmetric to the downside—this would mean providing an *ex-ante* risk premium while reducing the level of assurance we give of being able to recover the costs of investments through the RAB, increasing the risk of 'economic network stranding'.

5.162 The main advantage of allocating more demand risk to suppliers is that it may provide a strong incentive on suppliers to better manage the risk of economic network stranding (to the extent they can) and would reduce the chance of substantial price shocks to current and/or future consumers. This would be the desirable thing to do where they are better placed than consumers to manage that risk.

5.163 As discussed above, once compensation is set, it would reduce the need to consider risk allocation between current and future consumers when setting price paths for regulatory control periods.

5.164 The primary disadvantage is the difficulty in calculating the extent of compensation required, to the extent that any compensation is required (ie in principle, no compensation is required for symmetric risks). This can lead to over- and under-compensation to the supplier, and higher or lower prices to consumers.

5.165 Note that any changes to risk allocation would apply to future price-setting events and not retrospectively (for instance, they would not apply to Gas DPP3).

Clarity of long-term demand risk allocation under current Part 4 IMs

5.166 Promoting the section 52R purpose of the IMs includes promoting certainty about how risks will be managed when it comes to setting price-quality paths for future regulatory periods.

5.167 We consider that our current IMs have clearly allocated (and continue to allocate) most long-term demand risk to consumers.

5.168 However, experience from the Gas DPP3 reset may suggest a lack of shared understanding between suppliers and consumers about past risk allocation.

5.169 We acknowledge that consumers may not have fully appreciated what it means to be allocated long-term demand risk in the context of significant unexpected shifts in the long-term demand outlook for the services offered by GPBs.

5.170 All parties benefit from clear risk allocation. However, there is always a trade-off between having flexibility within a DPP and certainty for all parties involved and we intend to further consider this trade-off in the IM Review.

Interaction between long-term demand risk allocation and capital contribution policies

5.171 Capital contributions offer suppliers the ability to manage a significant portion of the long-term demand risk. This is particularly relevant to GPBs which face the associated risk of economic network stranding as a result of downside shocks to demand.

5.172 Under the current IMs for GPBs, all new investments enter the RAB and capital contributions are then deducted. By changing capital contribution policies, suppliers can manage some of the economic stranding risk (ie, a higher capital contribution reduces the remaining value at risk).

5.173 Our IMs relating to how assets are 'rolled forward' into the RAB have a strong influence over capital contribution policies. For example, we could consider disallowing growth capex from the RAB under some circumstances. To justify any changes, we would want to ensure that IM changes would not prevent or disincentivise connections/augmentations that are expected to promote the Part 4 purpose.

Have we previously looked at this topic or these issues?

5.174 We have considered long-term demand risk extensively since the Part 4 regimes were established:

5.174.1 In the last IM Review, we considered the stranding risk posed by the changing energy landscape, including emerging technologies, business models, and changing consumer preferences. We introduced the option for EDBs to request a limited shortening of asset lives at a DPP reset if they could show this would promote the Part 4 purpose.

5.174.2 In the recent draft decision for Gas DPP3, we proposed changes to the asset valuation IMs to allow accelerated depreciation in DPPs in response to changes in expected demand for natural gas pipelines.

5.174.3 In the Fibre IMs, we considered the stranding risk posed by competition from alternative technologies together with deregulation of the relevant market(s). We allocated this risk to Chorus and introduced compensation for this risk in the form of an *ex-ante* stranding allowance.

Is there other experience that could help deal with these issues?

5.175 In Gas DPP3, we noted that accelerating depreciation (eg, shortening assets lives or using a front-loaded depreciation profile) is a favoured response by overseas regulators to address concerns about falling demand as a result of the transition to a low carbon economy.[133] For example, the AER released an information paper in November 2021 on regulating gas pipelines under uncertainty.[134] The AER's preliminary view favoured accelerated depreciation to other options such as ex-ante compensation to manage stranding risk arising from demand uncertainty. This implies leaving long-term demand risk with consumers at this time.

Are there possible IM changes that could address the issue?

5.176 There may be specific circumstances where allocating long-term demand risk to suppliers is advantageous, despite the need for a risk premium. It may be appropriate to consider whether IMs should provide more flexibility in anticipation of potential shifts in risk over the next seven years.

5.177 Some stakeholders submitted that removing RAB indexation could address the issue. We note that, while RAB indexation backloads the recovery of capital, therefore increasing the value at risk of stranding, the central purpose of RAB indexation is to maintain the regulatory value of the RAB in real terms over time, which provides an expectation of real FCM and delivers an *ex-post* real return (things other than inflation being equal). In doing so, it protects consumers and suppliers from inflation risk. The frontloading of cashflows achieved by removing RAB indexation could also be achieved through alternative depreciation profiles. However, removing RAB indexation would expose consumers and suppliers to inflation risk.[135]

What further information is needed to advance our thinking?

5.178 We are particularly interested in consumer perspectives on how best to manage long-term demand risk for regulated suppliers.

5.179 Our approach to date exposes consumers to a degree of long-term price uncertainty, and in turn consumers expect to pay less for the services in aggregate over the long term.

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[133] Commerce Commission "Default price-quality paths for gas pipeline businesses from 1 October 2022 Draft reasons paper" (10 February 2022), page 82.

[134] AER "Regulating gas pipelines under uncertainty Information paper" (20 November 2021).

[135] We note that in the 2016 IM review draft decisions we proposed applying an approach for Transpower to provide 'real FCM ex-post' without indexing the RAB to inflation. However, in our final decision we considered that the additional complication of the approach was unlikely to result in significant benefits to suppliers or consumers in the low inflation environment. For more information see Commerce Commission "Input methodologies review decisions – Topic paper 1: Form of control and RAB indexation for EDBs, GPBs and Transpower" (20 December 2016), p. 317 - 324.

5.180 If we allocate more long-term demand risk to GPBs and/or EDBs, they may require a risk premium to manage the risk and maintain an expectation of FCM. In the absence of assets being economically stranded, this implies consumers may pay more for the service over the long run. On the other hand, if stranding occurred, consumers would not be exposed to higher prices (eg, the situation that customers of regulated pipeline businesses are currently facing). In principle, the probability-weighted average price should be the same.

5.181 We are interested to know if GPB and/or EDB and Transpower consumers would be willing to pay a risk premium to manage any asymmetric long-term demand risk in the future, in exchange for more long-term price certainty. We recognise the answer might differ in each sector.

Invitation to make a submission

5.182 We invite submissions on the issue of long-term demand risk allocation. Specific focus areas include:

5.182.1 whether the IMs should be changed to allow for more long-term demand risk to be allocated to certain regulated suppliers, and if so, why; and

5.182.2 where long-term demand risk remains primarily with consumers, what IM changes would assist to provide more certainty for consumers in allocating risk between current and future consumers.

5.183 We also welcome views on the suitability of the methodology we used in determining the stranding allowance in the Fibre IMs for other sectors.[136]

RAB indexation and inflation forecasting

What is the topic area?

5.184 This sub-topic discusses consumers' and regulated suppliers' exposure to inflation risk in relation to how we set revenue/price-paths and how we index suppliers' Regulated Asset Bases (**RABs**) for inflation. This involves how we forecast inflation for a future regulatory period, how indexation maintains the regulatory values of suppliers' RABs in real terms, and how we can adjust a price-quality path for outturn inflation.

5.185 Choices about RAB indexation to inflation determine:

5.185.1 whether *ex-post* suppliers receive real returns or real FCM (ie, are not exposed to inflation outturns that differ from forecasts) or returns that are maintained in nominal terms (ie, are exposed to inflation outturns that differ from forecasts); and

[136] Commerce Commission "Fibre input methodologies: Main final decisions – reasons paper" (13 October 2020), Attachment G.

5.185.2 whether those returns take the form of revenue (during the regulatory period) or both revenue and capital gains in the form of RAB revaluations. In other words, whether cashflows are front- or back-loaded.

5.186 A key reason for indexing suppliers' RAB to inflation is to preserve the regulatory value of suppliers' RABs in real terms over time. While RAB indexation provides *ex-ante* FCM, it is not the only way to achieve it: an unindexed RAB approach can also give suppliers an expectation of real FCM.[137]

5.187 However, without RAB indexation, suppliers and their consumers are exposed to the risk that inflation differs from forecast. Therefore, suppliers may receive a return that does not maintain their financial capital in real terms *ex-post*, and consumers may pay prices that are lower or higher in real terms.

5.188 Our approach differs between EDBs, GPBs, and Chorus on the one hand, where we index RABs to inflation, and Transpower on the other hand, where we do not. While both approaches provide an expectation of real FCM, our two approaches to RAB indexation in setting price paths results in:

5.188.1 an *ex-post* real return on capital (ie, delivering real FCM) with the revaluation of the RAB providing the compensation for inflation over the period (for EDBs, GPBs and Chorus); and

5.188.2 an *ex-post* return that is maintained in nominal terms for Transpower, that is exposed to differences between forecast and outturn inflation (no RAB indexation).[138]

5.189 Further background and worked examples are provided in Attachment A of the 2016 IM Review Topic paper 1.[139]

Our approach to RAB indexation for EDBs and GPBs

5.190 Our implementation of RAB indexation for EDBs and GPBs provides an *ex-ante* expectation of real returns (ie, real FCM) and delivers an *ex-post* real return, all other things being equal.[140]

5.191 Our price setting process at the time of resetting price paths is as follows:

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[137] See footnote 135 for more information.

[138] In our 2016 IM review draft decisions we considered a possible change to Transpower's RAB indexation that would deliver real returns ex-post by way of an 'annual capital charge adjustment'. Transpower did not agree with the proposed adjustment, noting the complexity this would add for minimal benefits. MEUG also agreed with this view. Commerce Commission "Input methodologies review draft decisions – Topic paper 1: Form of control and RAB indexation for EDBs, GPBs and Transpower" (16 June 2016), p. 317 - 324.

[139] Commerce Commission "Input methodologies review draft decisions – Topic paper 1: Form of control and RAB indexation for EDBs, GPBs and Transpower" (16 June 2016), Attachment A.

[140] Our approach delivers a real return in the sense of truing up for outturn inflation (ie, ignoring any variation in spend against allowances). So regardless of what inflation was forecast to be and what it turns out to be, both consumers and suppliers are protected from inflation risk.

5.191.1 WACC: use a nominal WACC (which inherently incorporates inflation expectations at the time it is calculated);

5.191.2 Forecast RAB revaluations: forecast inflation for each year of the regulatory period (based on forecasts at the time that we set the WACC for the price-path), then annually revalue the RAB by the forecast inflation;

5.191.3 Forecast revaluations as income: deduct the forecast annual RAB revaluation (based on forecast CPI) from the annual allowed revenue (ie, revaluations treated as income). This ensures that EDBs are not compensated for inflation twice (ie, once by using a nominal WACC, and twice by also revaluing the RAB);

5.191.4 RAB roll forward: under ID, the RAB is revalued using actual rather than forecast inflation. Therefore, at the time of the next price reset, opening RAB values have been maintained in real terms.

Our approach to RAB indexation for Transpower

5.192 Our approach to Transpower allows an expectation of real FCM but delivers returns that are maintained in nominal terms.[141] The consequence of this approach is that it exposes both Transpower and consumers to the risk that outturn inflation differs from inflation expectations inherent in the nominal WACC used, all other things equal. This approach was supported by Transpower in the 2016 IM review.[142]

5.193 Our price setting process for Transpower at the time of resetting price paths is as follows:

5.193.1 WACC: use a nominal WACC (which inherently incorporates inflation expectations at the time it is calculated);

5.193.2 RAB revaluations: not applied;

5.193.3 Revaluations as income: not applied;

5.193.4 RAB roll forward: inflation has no role in rolling forward Transpower's RAB.

Our approach to forecasting inflation for a price-quality path

5.194 The IMs state that forecast inflation for a PQ path is based on the RBNZ's Monetary Policy Statement CPI forecasts for the first 2-3 years of a regulatory period and assume that inflation in the remaining years of the regulatory period trends linearly back to the RBNZ's midpoint target of 2.0% in the last year of the regulatory period.

[141] Transpower's returns are only maintained in real terms when the inflation expectations inherent in the nominal WACC equal outturn inflation.

[142] Transpower "IM review: Submission on suite of draft decision papers" (4 August 2016), section 4.1.

What issues have been raised on this topic for consumers and suppliers?

5.195 In its response to our 2021 open letter, Vector notes an issue (the 'debt compensation issue') with our RAB indexation approach and nominal debt funding:[143]

> The Input Methodologies make a range of assumptions around the benchmark firm and the type of debt issued by the firm. Each of these presumptions suggest the benchmark firm would raise capital by issuing nominal debt.
>
> However, the Commission's IM methodology also adjusts the target return by deducting its forecast of expected inflation from the cash allowance provided to EDBs. This step provides a mismatch between the cash allowance for debt funding and the nominal interest expense anticipated over the regulatory period.
>
> Whilst this difference does not itself breach the NPV=0 criteria, it does create the additional risk where the forecast of expected inflation exceeds actual inflation then supplier cashflows for any regulatory period do not match the inflation compensation provided for by the indexation of the RAB.

5.196 This view was also supported by other regulated suppliers.[144] Unison notes that the current approach to RAB indexation places significant risk on equity investors in the event of inflation forecast inaccuracies, and this is particularly important in a low WACC environment.[145]

5.197 Vector also states that our approach to setting inflation has continually over-forecasted inflation and reduced cash allowances.[146] Vector states that our inflation forecasting over EDB DPP1 and DPP2 has resulted in actual supplier returns being significantly below the forecasting projected at the start of the DPP periods.

5.198 Unison considers that there is sufficient evidence of bias in CPI forecasts that we use under the current approach (ie, the RBNZ inflation forecasts).[147] Powerco suggests that we review our approach to the treatment of CPI to ensure that outcomes are symmetric in the long term.[148]

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[143] Vector "Vector Submission to the Commerce Commission's Open Letter on the Input Methodology Review, Gas Pipeline Business Reset and Information Disclosure Review" (May 2021), p. 45 - 47.

[144] For example, Orion "Orion feedback on fit for purpose regulation- open letter priorities for energy networks" (28 May 2021), p. 10; and Aurora "Aurora Energy response to 29 April open letter" (28 May 2021), p. 15.

[145] Unison "Unison response to 29 April Open Letter" (28 May 2021), p. 2.

[146] Vector "Vector Submission to the Commerce Commission's Open Letter on the Input Methodology Review, Gas Pipeline Business Reset and Information Disclosure Review" (May 2021), p 48 - 50.

[147] Unison "Unison response to 29 April Open Letter" (28 May 2021), p. 2.

[148] Powerco "Submission to the Commerce Commission's open letter on fit-for-purpose regulation of energy networks" (28 May 2021), p. 6.

5.199 GasNet notes that inflation uncertainty in the regulatory regime puts profitability at risk for GDBs.[149] GasNet recommends that we reconsider how we deal with mismatches between forecasted and actual inflation, noting that Australia's glide-path mechanism could be a pragmatic solution.

5.200 In response to our 2021 open letter, First Gas supports removing RAB indexation for GPBs, stating:[150]

> …we believe that the main outcome of interest for gas pipelines in New Zealand is that removing RAB indexation would have the effect of reducing RAB over time (all else being equal), providing a similar outcome to shortening asset lives or accelerating depreciation.

5.201 In 2019, Vector commissioned a report by CEG on dealing with the impacts of negative real risk-free rates in which CEG states:[151]

> In order to understand why overestimation of inflation imposes losses on EDBs, one has to understand that the Commission's financial model deducts from revenues an amount based on the IM forecast of inflation. The Commission does so because EDB's will be compensated for actual inflation via a rising RAB. However, to the extent that the Commission over-forecasts actual inflation, then more compensation is removed from revenues than is ever returned in a higher RAB, and EDB's do not earn the Commission's headline nominal return.

5.202 We note the above where CEG suggest that our approach does not give EDBs a return that is maintained in nominal terms. This is true, as our approach as specified in the IMs is to provide a real return for EDBs. So even if a supplier does not earn the expected nominal return (due to outturn inflation differing from forecasts), it will earn the expected real return *ex-post* (all else being equal).

5.203 We acknowledge that there are two practical issues with providing regulated suppliers with an *ex-post* real return.

5.203.1 Firstly, although we provide a real WACC return to the firm, firms tend to issue debt in fixed nominal terms. Therefore, even though the firm as a whole is protected from inflation risk, equity holders—when considered in isolation—may not receive a real return as they may be exposed to the inflation risk that exists due to their debt obligation being in nominal terms. We previously acknowledged this and considered that, over the long-term, this risk is small and will wash out over time; and that suppliers could potentially mitigate this to some extent by issuing inflation-indexed (or at least floating) debt.

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[149] GasNet "GasNet response to 29 April open letter" (2 June 2021), p. 4.

[150] FirstGas "FirstGas response to open letter on fit for purpose regulation" (28 May 2021), p. 9.

[151] CEG on behalf of Vector "Dealing with negative real risk-free rates" (July 2019), p. 53.

5.203.2 However, we note that stakeholders have since pointed out that this risk has been material for EDBs, and that there is no guarantee that the risk will wash out over time. Furthermore, they pointed out that inflation can remain persistently low or high for prolonged periods of time, which would expose 'generations' of consumers to pay less than, or more than, efficient prices.

5.203.3 Secondly, to provide an *ex-post* real return, we require consistency between the forecast inflation used to determine the forecast revaluation (subtracted from the revenue path) and the implicit inflation forecast inherent in the WACC. We cannot observe the inflation forecast inherent in the WACC, so it is difficult to ensure consistency.

5.204 In response to the first practical issue above, CEG states:[152]

> The Commerce Commission has made statements to the effect that EDBs can protect themselves from inflation forecast error by issuing inflation indexed debt and/or trading inflation derivative products. The first point to note is that, even if the market for inflation indexed corporate debt (and/or inflation swaps) was equally as liquid and fairly priced as nominal corporate debt, issuing inflation indexed debt provides zero protection against a biased IM forecast of expected inflation. If the IM forecast of inflation is biased upwards then the real cost of debt and equity will be undercompensated. There is no action that EDBs can take to undo this undercompensation.
>
> The second point to note is that issuing inflation indexed debt and/or trading in inflation swaps is costly. There is no deep or liquid market for these products and transaction costs are high. The expected cost of funding itself in this way could easily be a full percent higher than the cost of simply issuing nominal debt – which is the standard practice of all New Zealand corporations. The IMs provide no compensation for such costs and, given point one, incurring such uncompensated costs will be of zero value in combating bias in the IM inflation forecast.

5.205 In its report, CEG provides evidence suggesting that our inflation forecasts have overestimated inflation historically. It also states that:[153]

> There is every reason for EDBs and their investors to expect the same levels of forecast error and under-compensation to prevail in the 2020-25 DPP unless the IM is changed. This is because the IM inflation forecast methodology assumes that, beyond the RBNZ inflation forecast period, inflation will return to the RBNZ target of 2.0%. However, the market conditions that have led to this assumption not being borne out over the last two DPP periods are likely to continue to persist into the next DPP period.

5.206 We note that recent domestic and global macroeconomic events have led to high and rising inflation, up to levels not seen for decades in New Zealand and other developed economies. Recent outturn inflation has been well above forecast levels, and this could continue into the medium term.

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[152] CEG on behalf of Vector "Dealing with negative real risk-free rates" (July 2019), p. 68 - 69.

[153] CEG on behalf of Vector "Dealing with negative real risk-free rates" (July 2019), p. 70.

5.207 This situation is the opposite to what stakeholders have been submitting (see materials referred to above). This highlights the benefit of the protection to inflation risk that our approach to RAB indexation provides. However, we note that the 'debt compensation issue' remains a potential issue.

Have we previously looked at this topic or these issues?

5.208 As noted above, we set out and explained our approach to RAB indexation and inflation forecasting during the 2016 IM review.[154] The issue of forecast inflation and actual inflation mismatches, and suppliers issuing nominal debt, was also considered during the 2016 IM review.[155]

5.209 As part of the IM amendments process for the EDB DPP3 reset, some submitters raised concerns around RAB indexation, challenging the approach to forecasting inflation for the purposes of revaluing the RAB and proposing that the RAB be unindexed.[156]

5.210 In response to the approach on forecasting inflation we did not consider the issue warranted a change outside of the normal IM review cycle. We noted:[157]

> …in assessing whether the firm gets (an expectation of) a real return, it is not the comparison of the forecast CPI to actual CPI that matters, but the comparison to the implicit inflation forecast inherent in the WACC. If the latter was systematically lower than the CPI forecast we use to calculate revaluations, then the firm's expectation of earning real return could be compromised. However, given the above evidence on inflation expectations compared to our CPI forecast, we do not consider that this issue amounts to an exceptional circumstance that warrants material amendments to the asset valuation IM outside of the s 52Y review cycle.

5.211 In response to the suggestion to un-index the RAB, we noted that this had been explored in depth at the time of the 2016 IM review and did not consider the issue warranted a change outside of the normal IM review cycle. We noted:[158]

> We are not aware of any specific and reliable evidence, either as part of this amendments process or our EDB DPP3 consultation process, that the current approach under-compensates distributors to such an extent that they would face significant financial hardship. Further, we note that an un-indexed RAB approach would expose consumers to inflation risk and could lead to fluctuations in real bills. If a distributor were to transition from an indexed to an un-indexed RAB, this could also create short-term pricing shocks.

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[154] Commerce Commission "Input methodologies review draft decisions – Topic paper 1: Form of control and RAB indexation for EDBs, GPBs and Transpower" (16 June 2016), Chapter 5, Attachment A.

[155] Commerce Commission "Input methodologies review draft decisions – Topic paper 1: Form of control and RAB indexation for EDBs, GPBs and Transpower" (16 June 2016), p. 253 - 254.

[156] Commerce Commission "Amendments to Electricity Distribution Services Input Methodologies Determination – Reasons paper" (26 November 2019), p. 4.23 - 4.27.

[157] Commerce Commission "Amendments to Electricity Distribution Services Input Methodologies Determination – Reasons paper" (26 November 2019), p. 4.36.

[158] Commerce Commission "Amendments to Electricity Distribution Services Input Methodologies Determination – Reasons paper" (26 November 2019), p. 4.38.

5.212 We also considered the treatment of inflation in setting the Fibre IMs in which we decided to index regulated providers' RABs for inflation and apply inflation forecasting consistent with the approach under Part 4.[159]

Is there other experience that could help deal with these issues?

5.213 In 2020, the AER commissioned Professor Lally to review its inflation forecasting methodology.[160] This report looks at the assumptions and methods that go into the AER's inflation forecasting methodology and whether alternative options could improve its forecasts.

5.214 The report states that observable market prices (including the use of break-even rates and swap prices) are likely to be biased estimators of expected future inflation, and the degree of this bias varies over time.[161]

5.215 The report concludes that the AER's current approach, that is, using the Reserve Bank of Australia's (**RBA**) forecasts for the first two years and the RBA's target for the rest of future years, produces the least error. Lally states:[162]

> …using standard RMSE tests of forecasting accuracy, the RBA's Target is far superior to the use of market prices for forecasting inflation over 5-10 years, and therefore market prices can be rejected.
>
> …across the range of other approaches considered (comprising forecasts by the RBA, forecasts from Consensus Economics, the RBA's Target rate, a Random Walk model, a mean reversion model, and the model of Finlay and Wende), the lowest RMSE of the forecast errors comes from the RBA's forecasts for the first and second years ahead, and the RBA's Target for all other future years, which corresponds to the AER's current approach.

5.216 This was the finding in Australia and may produce different outcomes based on New Zealand data, but it is still an interesting and potentially relevant result for this review.

5.217 In its final decision on the regulatory treatment of inflation, the AER shortened its target inflation horizon from ten years to a term that matches the regulatory period.[163] The AER applies a linear glide-path from the RBA's forecasts of inflation for years 1 and 2 to the mid-point of the inflation target band (2.5 per cent) in year 5. This is very similar to our current inflation forecasting approach.

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[159] Commerce Commission "Fibre input methodologies: Main final decisions – Reasons paper" (13 October 2020), p. 3.317 - 3.366.

[160] Dr Martin Lally on behalf of the AER "Review of the AER's forecasting methodology" (8 July 2020).

[161] Dr Martin Lally on behalf of the AER "Review of the AER's forecasting methodology" (8 July 2020), p. 31.

[162] Dr Martin Lally on behalf of the AER "Review of the AER's forecasting methodology" (8 July 2020), p. 31 - 32.

[163] AER "Final position – Regulatory treatment of inflation" (December 2020), p. 6.

What are possible IM changes to address this issue?

5.218 As part of the IM Review, we intend to address whether suppliers and consumers should be exposed, *ex-post*, to outturn inflation risk. Once this policy decision is made, we can decide on the appropriate method for implementing it for regulated suppliers under the IMs, if a change is required.

5.219 We can also assess whether there are other unbiased inflation forecasting methodologies to apply, and whether these would be appropriate for application with RAB indexation.

What further information is needed to advance our thinking?

5.220 To make decisions on whether suppliers should have RABs that are indexed or unindexed, we require information on the costs and benefits of each approach. We note that the relative merits of the various approaches may vary depending on the circumstances. We are interested in stakeholder views about these relative merits in the changed current inflationary environment.

5.221 Some submissions from suppliers currently under the indexed RAB approach have stated a preference for moving to an unindexed RAB. We would like to know if this is still the case in the current inflationary environment, and if so, how would a change to an unindexed RAB better promote the purpose of Part 4.

5.222 To the extent possible, we would welcome information on consumers' preference for being exposed to inflation risk. If both suppliers and consumers were willing to be exposed to this risk, there would have to be a strong reason for the regime to insulate them from it.

5.223 Our approach to RAB indexation protects suppliers and consumers from inflation risk. However, the 'debt compensation issue' means that equity and debt holders have a residual exposure to inflation risk. Specifically, when actual inflation differs from the inflation inherent in our cost of debt allowance (ie, the inflation that lenders of nominal debt expect), the equity and debt holders may have to *ex post* fund/receive debt payments that are higher or lower in real terms. As we understand it, this issue affects equity and debt holders but does not affect the firm as a whole, or its customers. We may have this wrong, so welcome further evidence if suppliers consider this is not the case.

5.224 We have previously noted that one of the ways to mitigate the potential impact of having an indexed RAB would be to issue inflation-indexed (or at least floating) debt. Suppliers have previously noted that this is very expensive, but we do not know how much the premium on these types of bonds (compared with fixed nominal debt) truly is. We would welcome any evidence on the costs associated with issuing such debt.

Invitation to make a submission

5.225 We invite submissions on:

5.225.1 Whether suppliers prefer an indexed or unindexed RAB and why – ie, whether returns should be maintained in real terms? The answer is likely to be informed by preferences to risk exposure (stranding/price shocks risks vs inflation risk).

5.225.2 Whether we should reconsider the unindexed RAB approach currently applied to Transpower.

5.225.3 How does the current inflationary environment, where actual inflation has been higher than forecast, affect the answer to the above question?

5.225.4 Will consumers be better off under an indexed or unindexed RAB and why?

5.225.5 Whether there are other unbiased inflation forecast methodologies that could be considered alongside or in addition to our current inflation forecasting approach.

5.225.6 Whether there are any issues with the existing CPI wash-ups for price-quality paths to adjust for differences between forecast and actual CPI.

5.225.7 The market for inflation-linked bonds in New Zealand and whether it provides suppliers with an efficient way to protect against inflation risk.

Chapter 6 Issues relating to the cost of capital

Purpose of this chapter

6.1 This chapter identifies potential issues relating to how we estimate the cost of capital. We are required to apply the cost of capital IMs to estimate the cost of capital for WACC determinations.

Structure of this chapter

6.2 The structure of this chapter is:

- 6.2.1 Overview of cost of capital.
- 6.2.2 The impact of COVID-19 on financial markets.
- 6.2.3 Asset beta.
- 6.2.4 Issues related to the Tax-adjusted Market Risk Premium (**TAMRP**).
- 6.2.5 Adjusting the IMs to allow for a four-year regulatory period.
- 6.2.6 Split cost of capital.
- 6.2.7 Cost of debt issues.
- 6.2.8 Credit rating for airports.
- 6.2.9 Reconsidering the WACC percentile for electricity and gas businesses.
- 6.2.10 Is there other experience that could help deal with these issues?
- 6.2.11 What IM changes could address these issues?
- 6.2.12 What further information is needed to advance our thinking?
- 6.2.13 Invitation to make a submission.

Overview of cost of capital

6.3 The WACC is a key input in regulation based on the building blocks model. For PQ regulated firms, the WACC is the allowed rate of return on regulated assets. For ID regulated firms, the WACC is the benchmark used to assess profitability.

6.4 The IM for the cost of capital is intended to promote certainty for suppliers and consumers in relation to determining the cost of capital for ID purposes and for price-quality, consistent with s 52R.

6.5 In reaching our decisions on the cost of capital, our regulatory challenge is to determine the cost of capital for the supply of regulated services consistent with the cost of capital that would be faced by firms in workably competitive markets, ie, neither too high, nor too low, such that we give effect to the Part 4 purpose.

6.6 Specifically, we must determine a cost of capital as one input into the regulatory framework where that framework, as a whole, promotes the section 52A purpose of Part 4 by promoting outcomes that are consistent with outcomes produced in competitive markets such that suppliers of regulated services:

6.6.1 have incentives to innovate and to invest;

6.6.2 have incentives to improve efficiency and provide services at a quality that reflects consumer demands;

6.6.3 share with consumers the benefits of efficiency gains in the supply of the regulated services; and

6.6.4 are limited in their ability to earn excessive profits.

6.7 Therefore, our individual decisions on the cost of capital IM are aimed at contributing towards either, or both, promoting certainty and determining of an estimate of a cost of capital that gives best effect to the Part 4 purpose.

6.8 The cost of capital IMs are comprised of two parts. The first part sets out the methodology for estimating the WACC. The second part is concerned with the term credit spread differential (**TCSD**). The TCSD is an allowance to compensate firms that issue debt with an average initial tenor of more than five years. It is a separate part of the cost of capital IMs because it is compensated through cashflows and only applies to qualifying firms.

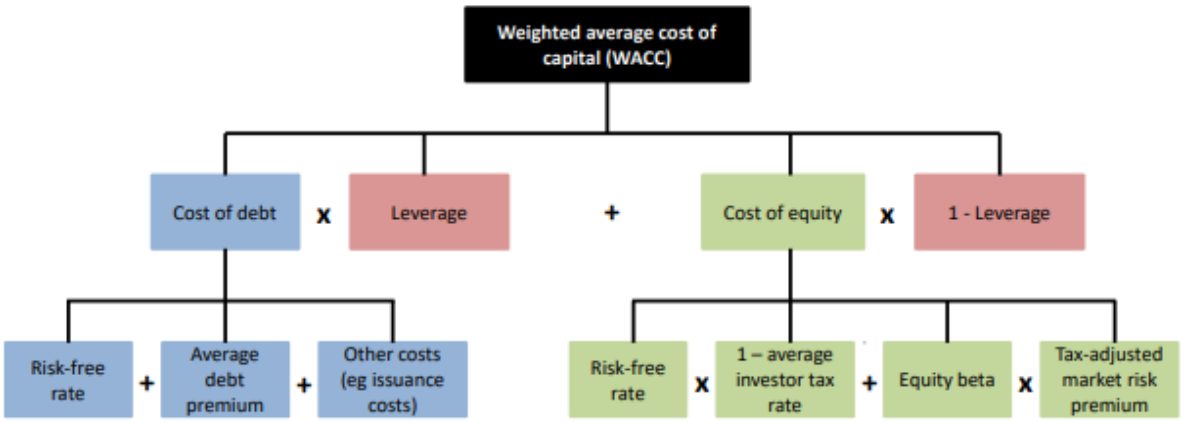
6.9 The WACC is estimated because it cannot be observed directly. Our approach to estimating the WACC has remained substantially unchanged since it was developed in the original IMs in 2010. In our view, our methodology provides a reasonable nominal WACC and is robust in the face of significant financial events. We are unaware of any issues with regulated firms' ability to raise capital to fund efficient investment in regulated services and would welcome evidence on this point.[164]

6.10 Consequently, the main issues we see are potential refinements to our approach, in line with maintaining the predictability of the regime. Nonetheless, we would be

[164] We note that even under the difficult circumstances of the first COVID-19 lockdown, Auckland Airport undertook a successful equity raising.

interested in any overarching issues stakeholders see in our methodology for estimating the WACC, including any issues in the face of significant financial events.

Figure 6.1: Components of vanilla WACC



6.11 Our approach to estimating the WACC is set out in Figure 6.1. At a high level, we need to estimate the cost of equity and the cost of debt and combine them using a leverage ratio to estimate the WACC. At a lower level, the cost of debt is estimated using a risk-free rate, debt premium and debt issuance (and associated) costs, while the cost of equity is estimated using the simplified Brennan-Lally capital asset pricing model.

6.12 Some of the parameters used in WACC determinations are specified in the IMs. During this IM review we will need to estimate these parameters and they will remain fixed until they are reviewed again. These include debt issuance costs, equity beta, the TAMRP, and the notional leverage ratio. In addition, we need to estimate the standard error of the WACC, which is not used directly in WACC determinations but is fixed in the IMs and is used in WACC percentile calculations. Finally, we will need to set the credit ratings, WACC percentile, and corporate and investor tax rates. All of these are fixed in the IMs until they are reviewed again.

6.13 The parameters specified in the IMs have been used in conjunction with estimates of the risk-free rate and the debt premium to estimate the WACC. The estimates of the risk-free rate and debt premium have been updated for each WACC determination following a methodology set out in the IMs.

6.14 Although the TCSD is conceptually a component of the cost of capital, it is treated as an adjustment to cashflows and is only available to regulated suppliers who have issued long-term debt to prudently manage their refinancing risks. The IMs specify how the TCSD is to be calculated (which is done separately from WACC determinations) and is part of the current review.

6.15 The remainder of this chapter highlights several potential issues relating to how we estimate the cost of capital. These are issues we have previously committed to

revisiting, that were raised in response to the open letter that we published in April 2021,[165] or that we wish to obtain feedback on. We raise these issues to acknowledge them and to obtain feedback, not to assign precedence to them. Further, while we expect that some of these issues will become areas of particular focus, we are required to review all the IMs, including re-estimating the parameters discussed in paragraph 6.12 above.

6.16 We invite submissions on any of the issues raised in this chapter, and on any other issues relating to our methodology and empirical approach for estimating WACC. We will take account of these submissions in applying our draft IM review framework to decide where we should focus our attention. In inviting submissions, we are particularly interested in new evidence, reasoning, and solutions, harnessing our draft IM review framework.

6.17 Through the initial establishment of the Part 4 IMs in 2010, the 2016 IM review, and the establishment of the Fibre IMs set under Part 6 of the Telecommunications Act in 2020, we have considered arguments and evidence for a range of issues relating to estimating the cost of capital.[166] We are more likely to revisit previously made decisions where there is new evidence or reasoning which calls into question the existing IMs.

The impact of COVID-19 on financial markets

What is the topic area?

6.18 This sub-topic concerns the impact of COVID-19 and the subsequent policy response on the robustness of our framework and on the parameters that we need to estimate for this review. The parameters that we need to estimate are, in most cases, estimated using historical financial-market data. The COVID-19 pandemic has had a significant impact on equity markets, and the policy response by central banks has had a significant impact on the risk-free rate and on bond markets. For example:

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[165] Commerce Commission "Open Letter – ensuring our energy and airports regulation is fit for purpose" (29 April 2021).

[166] The IM final decisions are accompanied by reasons papers in which we explain how we arrived at our final decisions. For the present review, the directly relevant reasons paper are: Commerce Commission "Input Methodologies (Airport Services) Reasons Paper" (December 2010), Chapter 6; Commerce Commission "Input Methodologies (Electricity Distribution and Gas Pipeline Services) Reasons Paper" (December 2010) Chapter 6; Commerce Commission "Input Methodologies (Transpower) Reasons Paper" (December 2010) Chapter 6; Commerce Commission "Input methodologies review decisions. Topic paper 4: Cost of capital issues", (20 December 2016). Submitters may also wish to consult the reasons papers for the Fibre IMs: Commerce Commission "Fibre input methodologies: Main final decisions – reasons paper" (13 October 2020), Chapter 6.

6.18.1 The NZX50 stock market index fell 24% between 21 February 2020 and 20 March 2020, before increasing by 47% between 20 March 2020 and 8 January 2021.

6.18.2 The five-year risk-free rate in our most recent WACC determination, estimated as of 1 April 2022, was 2.4%.[167] The rate of inflation is currently 6.9%.[168] While the risk-free rate is based on bond prices that include expected future inflation and the CPI inflation rate is a historical estimate, the implied before-tax real interest rate is negative.

6.19 In addition to its impacts on financial markets, COVID-19 and the policy response has had a particularly significant impact on airports and the demand for aeronautical services. In response to our open letter, Wellington Airport submitted that the experience of COVID-19 highlights that airports are exposed to significant non-systematic risk that is not compensated by our current WACC IMs.[169] We note that non-systematic risks are beyond the scope of the WACC.[170]

6.20 In 2010, we also considered whether we should make allowances in the cost of capital IMs to account for asymmetric risks.[171] Asymmetric risks are those that truncate the distribution of returns on one side of the distribution but not the other. We specifically considered the case of large risks unrelated to the day-to-day operations of the firm as one type of asymmetric risk and gave pandemics as an example. In the case of airports, we decided that we would not make adjustments to the cost of capital but that we would make allowances through cashflows where appropriate. In the case of EDBs and GPBs, we decided not to make any adjustments to the cost of capital IMs but did not specifically point to the possibility of cash-flow allowances. We also address this topic in chapter 5 at paragraph 5.61.

6.21 In addition, COVID-19 may have an impact on the parameters that we estimate for airports, particularly the reference credit rating. In our 2018 review of Christchurch

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[167] Commerce Commission "Cost of capital determination for gas pipeline businesses' 2022-2026/2022-2027 default price-quality path" (1 April 2022), Table 3.

[168] StatsNZ "Consumer price index (CPI) - 21 April 2022"..

[169] Wellington Airport "RE: Open letter-ensuring our energy and airports are fit for purpose" (31 May 2021).

[170] Non-systematic risk can be diversified away by investors holding a fully diversified portfolio – this leaves only the exposure to systematic risk (which applies to all companies) remaining. See for example Commerce Commission "Input methodologies review decisions. Topic paper 4: Cost of capital issues" (20 December 2016), p. 270, 393, and 424.

[171] Commerce Commission "Input methodologies (airport services) reasons paper (December 2010), E12.1 - E12.13; and Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (December 2010), H12.1 - H12.13.

International Airport's pricing decisions, we accepted arguments to allow for a credit rating of BBB+ rather than the A- rating prescribed in the IMs.[172]

6.22 We are interested in views on:

6.22.1 whether our current approach to estimating WACC and its components is robust to the current negative real interest rates; and

6.22.2 whether we need to consider any adjustments to the way we estimate parameters using data that includes the COVID-19 period, for example, the significant stock market movements that occurred in 2020 when estimating beta.

What issues have been raised on this topic for consumers and suppliers?

6.23 The issue of low and negative real and nominal interest rates has been raised in the submissions discussed below. While some of these submissions pre-date the pandemic, the concerns that they raise have been exacerbated by the pandemic.

6.24 The issue of low interest rates was raised during the EDB DPP3 reset. In a submission on behalf of Vector, Competition Economics Group (**CEG**) noted that in 2019, the before-tax real-interest rate on five-year government bonds was at 'historically unprecedented levels.'[173] We note that since the CEG report, the interest rate on five-year government bonds has increased, but inflation has increased more rapidly.

6.25 Under our approach, the cost of equity is estimated as the sum of the risk-free rate and the product of the equity beta and the TAMRP. Changes in the risk-free rate flow through directly to our estimate of the cost of equity. The issue that CEG raised is whether the unprecedentedly low interest rates will feed directly into unprecedentedly low real returns on equity. CEG stated that this is an issue that the Commission did not deal with during the 2016 IM review (as negative real risk-free rates had not occurred at that time).[174]

6.26 CEG noted that some international regulators have kept the nominal cost of equity stable despite low risk-free rates. They explained that these regulators have chosen either to adopt risk-free rates above the low prevailing rates on government bonds or to allow the market risk premium to vary to offset changes in the interest rate.

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[172] Commerce Commission "Review of Christchurch International Airport's pricing decisions and expected performance (July 2017-June 2022), p. A118.

[173] CEG on behalf of Vector "Dealing with negative real risk-free rates" (July 2019).

[174] CEG on behalf of Vector "Dealing with negative real risk-free rates" (July 2019), p. 46 - 47.

6.27 CEG stated that the Commission and the AER are notable exceptions to the established practice in Europe and the US of using estimates for the cost of equity that are relatively stable in the face of changes in the risk-free interest rate.[175]

6.28 As part of the EDB DPP3 IM amendments decisions in 2019, the ENA (on behalf of 14 of its members) submitted that the WACC estimate was unrealistically low and referred to CEG's report stating that the TAMRP in the cost of capital IM should be updated to account for the "radically lower risk-free rates".[176]

6.29 In response to the concerns raised during the EDB DPP3 reset, we considered that it would not be appropriate to review our approach to estimating the TAMRP outside of the s 52Y IM review cycle, noting that the TAMRP is deliberately included as a parameter in the IMs to provide certainty to stakeholders. We also said that it would not be appropriate to review the TAMRP methodology in isolation of the remainder of the cost of capital IMs.[177]

6.30 The issue of negative real interest rates was also raised during consultation on the Fibre IMs. Specifically, we considered concerns around the impact of negative real interest rates on the estimation of the TAMRP. We concluded that our estimation methodology was appropriate and did not need to change based on potential negative real interest rates.[178]

6.31 We had sought advice from Dr. Lally on the estimation of TAMRP. In concluding that our estimation methodology was robust, we noted that a strength of Dr Lally's approach of taking multiple TAMRP estimates from different methodologies is that it does not place too much weight on a single methodology. The final estimate of TAMRP is not dependent on any one of the particular estimates or methodological approaches. and is therefore likely to produce a better estimate.[179]

6.32 In July 2020, as part of the Fibre IM process, we committed to considering whether we should re-open the cost of capital IMs for fibre to take account of the impact of COVID-19 and the policy response to it on financial markets. In March 2021, we

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[175] CEG on behalf of Vector "Dealing with negative real risk-free rates" (July 2019), p. 51.

[176] Commerce Commission "Amendments to Electricity Distribution Services Input Methodologies Determination – Reasons paper" (26 November 2019), p. 4.9 - 4.10.

[177] Commerce Commission "Amendments to Electricity Distribution Services Input Methodologies Determination – Reasons paper" (26 November 2019), p. 4.11 - 4.15.

[178] Commerce Commission "Fibre input methodologies: Main final decisions – reasons paper" (13 October 2020), p. 6.582 - 6.590.

[179] Dr Martin Lally "Estimation of the TAMRP" (26 September 2019).

decided not to re-open the cost of capital IMs.[180] Our reasons for not re-opening the cost of capital IMs are set out in the March 2021 letter.

6.33 No issues have been raised on the impact of volatility in financial markets on our estimates of the parameters used to estimate WACC.

Asset beta

What is the topic area?

6.34 Asset betas are a key parameter in our estimate of the cost of equity. We use a six-step process to estimate asset betas.[181] This sub-topic relates to issues associated with the identification of a sample of comparator firms used to estimate betas (step 1).

6.35 We note that, while it is not an issue that has been raised with us, we will also be considering asset beta adjustments (step 5) as part of this review. We welcome views on our approach to determining whether adjustments are warranted and our approach to determining the magnitude of the adjustment where they are warranted. Currently, airports have an asset beta adjustment of -0.05 and GPBs have an asset beta adjustment of +0.05.[182]

What issues have been raised on this topic for consumers and suppliers?

Electricity and gas comparator sample

6.36 Our approach to the electricity and gas comparator sample has been to use a combined sample of large New Zealand, Australian, UK, and US electricity and gas utilities.[183] The sample includes vertically integrated utilities and utilities that undertake unregulated energy and non-energy activities. The inclusion of these firms reflects the difficulty in creating a sufficiently large sample of 'pure-play' electricity distribution and gas pipeline businesses.

6.37 To create the sample, we begin with businesses with the Bloomberg industry classifications 'Electricity', 'Gas Distribution', 'Pipelines', and 'Multiutilities'. We remove firms that have a market capitalisation of less than $100 million or a trading history of less than five years. We then use Bloomberg company

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[180] Commerce Commission "The impact of the Covid-19 pandemic on cost of capital input methodology for fibre" (30 March 2021).

[181] Commerce Commission "Input Methodologies Review Decision, Topic paper 4: Cost of capital issues" (20 December 2016), p. 266.

[182] Commerce Commission "Input Methodologies Review Decision, Topic paper 4: Cost of capital issues" (20 December 2016), p. 344, 347 - 364 (gas), and 475 - 486 (airports).

[183] Commerce Commission "Input methodologies review decisions. Topic paper 4: Cost of capital issues" (20 December 2016), p. 275 -285.

descriptions and 'Segment Analysis' information to determine whether firms are sufficiently comparable to warrant inclusion in the sample.

6.38 In the 2016 IM review, parties submitted that:[184]

6.38.1 gas businesses had materially higher asset betas than electricity businesses and for that reason gas and electricity businesses should have separate comparator samples; and

6.38.2 we should examine the firms in the sample more closely to determine the extent to which they derived revenue from regulated energy transportation activities.

6.39 In our final decision we retained the large, combined comparator sample for electricity and gas businesses. However, we committed to re-examining aspects of this decision in the present review. Specifically, we committed to considering:[185]

6.39.1 the refinements suggested by TDB Advisory (**TDB**), with the aim of gathering more detailed data on each of the companies in the sample so that we can further refine our decisions over their suitability for inclusion in the sample; and

6.39.2 Oxera's suggestion that we use separate comparator samples for estimating asset betas for electricity companies and gas companies.

6.40 As part of this review, we intend considering whether asset betas for electricity and gas businesses should be estimated using a combined comparator sample, or whether they should be estimated using separate samples. We also intend examining more closely the businesses in the sample to ensure that it is appropriate to include them as comparators.

Airports comparator sample

6.41 In our 2016 final decision, we noted that we would review the decision to include two companies – Airport Facilities and Japan Airport Terminal – in the comparator sample for airports.[186] As part of this review, we intend considering whether these companies should be retained in the comparator sample.

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[184] Oxera (report prepared for First Gas) "Asset beta for gas pipeline businesses in New Zealand" (3 August 2016); TDB Advisory Limited (report prepared for Contact Energy) "Submission to the Commerce Commission on the input methodologies review draft decisions: Comparative company analysis" in Contact Energy "Input Methodology Review" (4 August 2016), Appendix K.

[185] Commerce Commission "Input methodologies review decisions. Topic paper 4: Cost of capital issues" (20 December 2016), p. 319.

[186] Commerce Commission "Input methodologies review decisions. Topic paper 4: Cost of capital issues" (20 December 2016), fn. 356.

Have we previously looked at this topic or these issues?

6.42 We have looked at each of the above issues previously.

6.43 On the issues relating to the comparator set for electricity and gas businesses, we draw attention to submissions by Oxera and TDB during the 2016 IM review.[187] The issues raised in these submissions are addressed in the 2016 IM review reasons paper.[188]

6.44 On the issue relating to the airports comparator sample, we noted our intention to re-examine the inclusion of these airports in the sample, as cited above. The process that we followed in 2016 for identifying the comparator sample for airports is set out in the 2016 IM review reasons paper.[189]

Issues related to the tax-adjusted market risk premium

What is the topic area?

6.45 The TAMRP is a key parameter in our estimate of the cost of equity. The TAMRP is a market-wide parameter, so we use a consistent approach across all sectors that we regulate.

6.46 More information on the TAMRP can be found in the 2016 IM review.[190] We also discussed the TAMRP as part of setting the cost of capital IMs for fibre, where we estimated an updated TAMRP using the same approach as in the 2016 IM review.[191]

What issues have been raised on this topic for consumers and suppliers?

How often should the TAMRP be re-estimated?

6.47 The TAMRP is an economy-wide parameter that should not vary by sector, service, or company. Our TAMRP estimates are used in Part 4 and Part 6 regulation as well as being relevant to other sectors such as dairy and sectors we have examined under our market studies powers.

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[187] Oxera (report prepared for First Gas) "Asset beta for gas pipeline businesses in New Zealand" (3 August 2016), p. 826 - 828; TDB Advisory Limited (report prepared for Contact Energy) "Submission to the Commerce Commission on the input methodologies review draft decisions: Comparative company analysis" in Contact Energy "Input Methodology Review" (4 August 2016), Appendix K, and p. 829 – 831.

[188] Commerce Commission "Input Methodologies review decision. Topic paper 4: Cost of Capital Issues" (20 December 2016), p. 309 – 320.

[189] Commerce Commission "Input Methodologies review decision. Topic paper 4: Cost of Capital Issues" (20 December 2016), p. 460 – 467.

[190] Commerce Commission "Input methodologies review decisions – Topic paper 4: Cost of capital issues" (20 December 2016), p. 490 – 533.

[191] Commerce Commission "Fibre input methodologies: Main final decisions – reasons paper" (13 October 2020), p. 6.521 - 6.594

6.48 We re-estimated the TAMRP in 2020 as part of the process of setting the cost of capital IMs for fibre and concluded the TAMRP had increased from 7% to 7.5%. In March 2022 we amended the IMs for GBPs to incorporate the new estimate of 7.5% for the TAMRP. As a result, among businesses regulated under Part 4, the airports, electricity distribution and electricity transmission IMs specify a TAMRP of 7% while the gas distribution and gas transmission IMs specify the use of a 7.5% TAMRP.

6.49 In our Fibre IMs-setting process we discussed and rejected submissions suggesting that the TAMRP should not be prescribed in the cost of capital IMs but should be determined at the start of each regulatory period.[192, 193]

6.50 In arriving at this decision, we balanced the certainty provided by setting the TAMRP as a parameter in the IMs against the benefits of reflecting current market conditions. We also recognised that the TAMRP is not observable, and so any estimate necessarily requires judgement, and that re-estimating the TAMRP is a substantive piece of work.

6.51 We are considering using our 2020 estimate of the TAMRP in the current review. The 2020 estimate is an estimate of a market parameter that we expect is relatively stable over time. However, we also intend considering how often the TAMRP should be estimated and how new estimates should be applied across regulated sectors.

Rounding of the TAMRP

6.52 The issue of rounding the TAMRP has been raised in submissions.[194] While the issue may be moot if we decide to use the 2020 estimate in this review, we raise it because it has been raised with us and we are open to the possibility that we may decide not to use the 2020 estimate. Currently in the Part 4 IMs and the Fibre IMs we round our TAMRP estimate to the nearest 50 basis points. The decision to round the TAMRP estimate was considered in the 2016 IM review as well as in the Fibre IMs process.

6.53 We received a number of submissions on this point in the 2016 IM review. Submissions on our draft decisions suggested more precise rounding (such as

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[192] See ENA "Draft Fibre IM Determination – Submission to the Commerce Commission" (28 January 2020), p. 19; and Vector Communications "Vector Communications Submission to the Commerce Commission Fibre Input Methodologies Project" (28 January 2020), p. 42 - 45.

[193] Commerce Commission "Fibre input methodologies: Main final decisions – reasons paper" (13 October 2020), p. 6.571 - 6.581.

[194] See Commerce Commission "Input methodologies review decisions – Topic paper 4: Cost of capital issues" (20 December 2016), p. 523 - 525; and Commerce Commission "Fibre input methodologies: Main final decisions – reasons paper" (13 October 2020), p. 6.558 - 6.570.

rounding to the nearest 0.1% or 0.25% rather than 0.5%) and cited the economic impact of this rounding on consumers and suppliers.[195]

6.54 We also received a number of submissions on our Fibre IMs draft decisions related to the rounding of the TAMRP. Submitters suggested that we accept the median TAMRP estimate rather than round the final estimate to the nearest 50 bps and noted that there is no reason why the TAMRP alone should be rounded and not the other WACC parameters. Other submitters supported Dr Lally's view that the costs of rounding the TAMRP outweighed the benefits of not rounding, noting that other WACC parameters are rounded and that rounding provides protection from frequent changes to the TAMRP.[196]

6.55 In its submission on our recent GPB IM amendments related to WACC for the 2022 DPP, MEUG reiterated that it does not support rounding of the TAMRP.[197]

6.56 Dr Lally's expert report published in May 2020 responded to submissions on our draft decision, including those on rounding the TAMRP.[198] Lally noted that higher degrees of precision are not actually attainable, that errors from rounding will tend to offset over time, and that rounding is necessary for all estimates – what is at dispute is the degree of rounding.

6.57 We considered that our rounding rule works on the basis that estimating the TAMRP to a high level of accuracy is not practically achievable, and that estimation errors will generally cancel out over the lives of the assets.[199] We agreed with submissions that applying the rounding rule can lead to larger moves between estimations compared with using the median estimate. However, using the median estimate would place significant weight on the median approach and estimate.

Have we previously looked at this topic or these issues?

6.58 As noted, we addressed these issues in the 2016 IM review and Fibre IMs decisions.[200, 201]

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[195] See discussion at Commerce Commission "Input methodologies review decisions – Topic paper 4: Cost of capital issues" (20 December 2016), p. 523 - 525.

[196] See discussion at Commerce Commission "Fibre input methodologies: Main final decisions – reasons paper" (13 October 2020), p. 6.558 - 6.570.

[197] MEUG "GPB IM amendments" (24 February 2022), p. 3.

[198] Dr Martin Lally "Further issues concerning the cost of capital for fibre input methodologies" (25 May 2020), section 2.4.

[199] Commerce Commission "Fibre input methodologies: Main final decisions – reasons paper" (13 October 2020), p. 6.566 - 6.570.

[200] Commerce Commission "Input methodologies review decisions – Topic paper 4: Cost of capital issues" (20 December 2016), p. 490 - 533.

[201] Commerce Commission "Fibre input methodologies: Main final decisions – reasons paper" (13 October 2020), p. 6.521 - 6.594.

Adjusting the IMs to allow for a four-year regulatory period

What is the topic area?

6.59 The topic is concerned with changing the cost of capital IMs to allow the cost of debt and equity to match a four-year regulatory period for EDBs, Transpower, and GPBs.

6.60 We will also consider whether equivalent changes are required for airports.

What issues have been raised on this topic for consumers and suppliers?

6.61 As part of our Gas DPP3 process, we have decided to change the cost of capital IMs for GPBs to allow for the possibility of a four-year regulatory period.[202] In the original IMs we discussed linking the WACC estimate to the regulatory period. While the Act allows for regulatory periods of between four and five years, the IMs only provided for WACC estimates that reflect a five-year regulatory period.[203]

6.62 To give effect to the possibility of a four-year regulatory period, we changed the gas cost of capital IM for estimating the risk-free rate to match the regulatory period and to also provide for an allowance of 0.25% for debt issuance costs for a four-year regulatory period. We have not changed how we estimate the debt premium.

6.63 Greymouth Gas, First Gas, Powerco, and MEUG submitted in support of the proposed changes. Vector submitted that they did not agree with the perceived need to link the risk-free rate to the regulatory period but noted that it was a larger topic that may be better dealt with in the present IM review.[204]

6.64 In the present review, we will consider changes to the cost of capital IMs to allow for a four-year regulatory period for EDBs, Transpower, and GPBs and for regulatory periods shorter than five years for airports.

Have we previously looked at this topic or these issues?

6.65 As noted above, we have been considering the possibility of a four-year regulatory period in the context of our Gas DPP3.

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[202] Commerce Commission "Amendments to input methodologies for gas pipeline business related to the 2022 default price-quality paths – weighted average cost of capital: reasons paper (25 March 2022), p. 3.23 - 3.37.

[203] Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (December 2010), p. 6.3 and p. 6.3.4.

[204] First Gas "Proposed weighted average cost of capital IMs amendments" (04 March 2022); Greymouth Gas "Re: Proposed Cost of Capital Amendments to Gas IMs" (25 February 2022); Major Electricity Users' Group "GPB IM amendments" (24 February 2022); Powerco "Powerco feedback on proposed cost of capital IM amendments for GPB's" (24 February 2022); Vector "Proposed amendments to the cost of capital input methodologies for gas pipeline businesses related to the 2022 default price-quality paths" (24 February 2022).

Split cost of capital

What is the topic area?

6.66 The topic area is whether we should adopt a split cost of capital, whereby new investment would be given a higher WACC than existing assets.

What issues have been raised on this topic for consumers and suppliers?

6.67 In their response to our 2020 budget bid, MEUG submitted that they supported more detailed review of the cost of capital than was undertaken in the 2016 review.[205] In an example of an issue that they believed should have been given greater attention, MEUG highlighted the possibility of a split cost of capital, which would allow for a higher cost of capital for new investment.

6.68 We considered the possibility of a split cost of capital in the 2016 IM review. We noted, in deciding not to implement a split cost of capital, that there were unresolved problems in the implementation.[206] Submissions from other parties argued for not devoting further resources to this issue until the practical problems in its implementation have been resolved. We are not aware of any new evidence either within New Zealand or internationally that would change our position but would welcome further evidence on this point.

Cost of debt issues

What is the topic area?

6.69 As part of estimating the cost of capital, we must estimate the cost of debt. The cost of debt generally covers the costs associated with future interest payments as well as the costs of issuing and maintaining a debt portfolio.

6.70 We reviewed our cost of debt methodology extensively in the 2016 IM review.[207]

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[205] Major Electricity Users Group "Levy consultations 2020" (05 February 2021), p. 2.

[206] Commerce Commission "Input methodologies review decisions – Topic paper 4: Cost of capital issues" (20 December 2016), p. 674 - 688.

[207] Commerce Commission "Input methodologies review decisions – Topic paper 4: Cost of capital issues" (20 December 2016), Chapter 3.

What issues have been raised on this topic for consumers and suppliers?

Term of the risk-free rate

6.71 In its response to our 2021 open letter, Vector submitted that our methodology for estimating the risk-free rate is out of step with how other regulators set their risk-free rates when determining the benchmark cost of debt.[208] They suggest that our risk-free rate term (linked to the term of the regulatory period) is 'artificially short' and does not reflect investor expectations. Vector stated:[209]

> Most other regulators adopt an approach seeking to match the profile of the underlying asset rather than seeking to match their risk-free rates with the term of the regulatory control period.

Use of the prevailing rate approach for the cost of debt

6.72 In its response to our 2021 open letter, Vector submitted that our methodology for estimating the return on debt is out-of-step with how other regulators set their efficient cost of debt.[210] Vector stated:[211]

> The Commission is now an outlier by adopting a primarily "on-the-day" approach to setting the cost of debt. Other regulators such as the AER made the decision to move away from the on-the-day approach given the volatility this approach has on the benchmark WACC from regulatory period to regulatory period.

6.73 Vector considers that our on-the-day approach has led to significant changes in the cost of debt from one regulatory period to another, mostly due to the narrow estimation window (three-months) for estimating the risk-free rate. It notes that these swings are material and can lead to unnecessary volatility.

6.74 We addressed one aspect of Vector's concerns in the 2016 IM review by extending the estimation window for the risk-free rate from one month to three months. Extending the estimation window decreases the likelihood that, or the extent to which, the hedging activities of regulated suppliers would have an impact on the cost of hedging.[212] In our 2016 IM review decisions we also moved to using a five-

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[208] Vector "Vector Submission to the Commerce Commission's Open Letter on the Input Methodology Review, Gas Pipeline Business Reset and Information Disclosure Review" (May 2021), p. 41. This was also reflected in Vector's submission on the proposed amendments to the cost of capital IMs for GPBs related to the 2022 DPP, see Vector "Proposed amendments to cost of capital input methodologies for gas pipeline businesses related to the 2022 default price-quality paths" (24 February 2022), p. 14.

[209] Vector "Vector Submission to the Commerce Commission's Open Letter on the Input Methodology Review, Gas Pipeline Business Reset and Information Disclosure Review" (May 2021), p. 41.

[210] Vector "Vector Submission to the Commerce Commission's Open Letter on the Input Methodology Review, Gas Pipeline Business Reset and Information Disclosure Review" (May 2021), p. 42 - 44.

[211] Vector "Vector Submission to the Commerce Commission's Open Letter on the Input Methodology Review, Gas Pipeline Business Reset and Information Disclosure Review" (May 2021), p. 42.

[212] Commerce Commission "Input methodologies review decisions – Topic paper 4: Cost of capital issues" (20 December 2016), p. 117 to 118.

year historical average to estimate the debt premium, rather than the previous prevailing approach.

Debt issuance costs and potential double recovery

6.75 There may be an issue with regulated suppliers recovering debt issuance costs through the WACC while also potentially recovering these costs through the regulated opex allowance. This would result in a double recovery of these costs.

6.76 This issue was raised in relation to Transpower as part of our IRIS baseline adjustment term decisions where Transpower proposed a number of step changes to its opex allowance, including 'debt raising costs' that were omitted from the 2015-2020 regulatory control period (**RCP2**) opex allowances.[213]

Inflation forecasting and debt compensation

6.77 Submissions made in response to our 2021 open letter raised issues with inflation forecasting and RAB indexation in the context of debt compensation. This is a relevant issue for WACC, but we have chosen to cover this as part of the RAB indexation and inflation forecasting sub-topic in Chapter 5.

Have we previously looked at this topic or these issues?

6.78 As previously mentioned, we reviewed our cost of debt methodology extensively in the 2016 IM review.[214] This included our decision and reasoning related to:

6.78.1 the term of the risk-free rate;[215] and

6.78.2 consideration of a trailing average approach to estimating the cost of debt.[216]

6.79 We also considered issues relating to the cost of debt in the cost of capital IMs for fibre, including the relevant term of the risk-free rate and the approach to estimating the cost of debt.[217]

6.80 On the potential issue of double recovery of debt issuance costs, we have previously provided guidance that these costs should be recovered through the

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213 Transpower "Submission on IRIS baseline adjustment term" (21 August 2019), p. 9.

214 Commerce Commission "Input methodologies review decisions – Topic paper 4: Cost of capital issues" (20 December 2016), Chapter 3.

215 Commerce Commission "Input methodologies review decisions – Topic paper 4: Cost of capital issues" (20 December 2016), p. 535 - 536.

216 Commerce Commission "Input methodologies review decisions – Topic paper 4: Cost of capital issues" (20 December 2016), p. 81 - 160.

217 Commerce Commission "Fibre input methodologies: Main final decisions – reasons paper" (13 October 2020), p. 6.66 - 6.343.

WACC and not through regulated expenditure allowances.[218] However, we would be interested in evidence that these costs have not been taken out of regulated expenditure allowance estimates provided to the Commission.

Credit rating for airports

What is the topic area?

6.81 Credit ratings are an indication of a borrower's creditworthiness. The higher the rating, the less the likelihood of default.

6.82 We have specified notional long-term credit ratings, which are used when estimating the debt premium.[219] Currently, airports have a benchmark credit rating of A-.

What issues have been raised on this topic for consumers and suppliers?

6.83 We note that since the last IM review in 2016 two of the regulated airports (Wellington and Christchurch) have had credit rating changes:

6.83.1 Wellington Airport moved from an S&P BBB+ rating to an S&P BBB rating in June 2020; and

6.83.2 Christchurch Airport moved from an S&P BBB+ rating to an S&P A- rating in September 2018, and subsequently moved back from A- to BBB+ in June 2020.

6.84 With these changes in credit ratings and variation between different regulated airports, we intend to evaluate whether the A- notional credit rating remains appropriate.

6.85 We note that when assessing the profitability of airports, we are able to assess the cost of capital using each airport's individual circumstances where appropriate (such as considering alternative credit ratings to the rating specified in the airports cost of capital IM).

Have we previously looked at this topic or these issues?

6.86 When we first set the IMs for airports services in 2010, we considered that an S&P long-term credit rating of A- was appropriate for benchmarking the debt premium used for setting the cost of debt for regulated airport services.

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[218] Commerce Commission "Input methodologies review decisions – Topic paper 4: Cost of capital issues" (20 December 2016) , p. 197 - 200.

[219] We use notional credit rating because if suppliers' actual credit ratings were used, there may be an incentive for them to increase leverage, leading to adverse implications for consumers.

6.87 In submissions on the 2010 IM draft decisions, some regulated suppliers considered that the benchmark credit rating was too high, proposing an S&P BBB+ long-term credit rating rather than an A-.[220] A number of these parties submitted that the credit rating should be the same as the average credit rating of the comparator sample used to estimate the asset beta.

6.88 In the 2016 IM review we considered that S&P long-term credit ratings remained appropriate.[221] We note that in our assessment Christchurch Airport's profitability, we considered that Christchurch Airport's approach of using a credit rating of BBB+ (rather than a notional A- credit rating) was reasonable.[222]

6.89 In our decisions for the Fibre IMs, we considered two options for setting the notional service-wide benchmark credit rating value:

6.89.1 Option 1: 'comparator sample approach' – estimating the average credit rating of the comparator companies in the asset beta comparator sample (from which we also derive the leverage) and applying this value as the service-wide notional target credit rating, possibly with an adjustment on a defined basis; and

6.89.2 Option 2: 'notional credit rating approach' – selecting a target credit rating through judgement to reflect an appropriate level of credit default risk, while also having regard to the results from the comparator set, and applying this as the service-wide notional target credit rating.

6.90 Our final decision was to set a service-wide notional target credit rating value using option 2 above.[223]

Reconsidering the WACC percentile for electricity and gas businesses

What is the topic area?

6.91 This topic is about determining the WACC for electricity and gas businesses that will best promote the section 52A purpose of Part 4, taking account of the uncertainty of WACC estimates and balancing the costs of underinvestment with the higher prices for consumers that result from either overinvestment or higher returns.

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[220] See Commerce Commission "Input Methodologies (Airport Services) – Reasons Paper" (22 December 2010), p. E5.44 - E5.57.

[221] Commerce Commission "Input methodologies review decisions – Topic paper 4: Cost of capital issues" (20 December 2016), p. 255.

[222] See Commerce Commission "Review of Christchurch International Airport's pricing decisions and expected performance (July 2017 – June 2022)" – Final report (1 November 2018), p. A111 - AA119.

[223] See Commerce Commission "Fibre input methodologies: Main final decisions – reasons paper" (13 October 2020), p. 6.355 - 6.379.

6.92 The WACC is uncertain as it cannot be observed either in advance or after the fact. Hence our mid-point estimate is subject to uncertainty and mis-estimation risk. Our approach to dealing with these risks has been to estimate a mean and a standard error for the cost of capital, and to then consider where on the distribution to make our determinations.

6.93 We currently set the WACC for electricity and gas businesses at the 67th percentile of our estimated WACC distribution.

What issues have been raised on this topic for consumers and suppliers?

6.94 In the original 2010 IM decisions, we set the WACC for price-quality regulated electricity and gas businesses at the 75th percentile of our estimated cost of capital. Following the High Court merits appeal, we revisited the WACC percentile and in 2014 we revised it to the 67th percentile.[224, 225]

6.95 Setting the WACC at the 67th percentile has the effect of giving electricity and gas businesses a WACC uplift relative to our mid-point estimate of their cost of capital.

6.96 MEUG raised the WACC percentile in their submission on our 2021 open letter.[226] MEUG linked the uplift from using the 67th percentile to the tension between the need for innovation and the distribution of the costs and benefits of that innovation.

6.97 We currently see the main potential issues relating to the predicted decline in gas over the longer-term and corresponding increased dependence on electricity. This may impact on the error costs associated with under or over-investment respectively in the gas and electricity sectors.

Have we previously looked at this topic or these issues?

6.98 We first considered the WACC percentile when establishing the original IMs in 2010. In the original IMs we set the WACC for PQ regulated EDBs, Transpower, and GPBs at the 75th percentile. After the High Court decision, we undertook a comprehensive review of the WACC percentile for PQ regulated electricity and gas businesses and determined that the WACC for these businesses should be set at the 67th percentile. [227]

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[224] Commerce Commission "Input methodologies (electricity distribution and gas pipeline businesses)" (December 2010), section H11.

[225] Commerce Commission "Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services: Reasons paper" (30 October 2014).

[226] Major Electricity Users Group "Feedback on the fit for purpose regulation" (May 2021), p. 5c.

[227] Commerce Commission "Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services: Reasons paper" (30 October 2014).

6.99 We reviewed the WACC percentile in the 2016 IM review. In that review, we received submissions recommending that we not reconsider the WACC percentile.[228] We also received submissions recommending that we use the 50th percentile.[229]

6.100 In our final decision on the 2016 IM review, we retained the 67th percentile, reasoning that considerable work had gone into the decision to set it at the 67th percentile, that there was no new evidence that contradicted that work, and that it was too soon to judge whether it was having the intended effect.[230]

6.101 At the time we committed to reviewing the WACC percentile in the present IM review. Specifically, we committed to considering whether the WACC uplift was delivering benefits to consumers in the electricity and gas sectors.[231] In evaluating whether or not the WACC uplift has delivered benefits, we propose following the methodology that underpinned our 2014 decision.

6.102 We also considered the question of WACC uplifts in establishing the costs of capital IMs for fibre in 2020. In the context of fibre, we did not consider that the potential benefits to end-users from a higher than mid-point WACC would outweigh the costs they would face from an uplift.[232] We considered that the visible consequences of under-investment, potential competition and the availability of alternatives, and the relative newness of the regulated fibre networks meant that the expected costs to end-users from under-investment appeared an order of magnitude less than the costs they would face from a higher than mid-point WACC.

6.103 The Fibre IMs reasons paper is our most recent statement of our approach to determining whether particular circumstances warrant a WACC uplift.[233]

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[228] Orion "Submission on the cost of capital and the IM review" (5 February 2016), p. 14.1; PWC (on behalf of 19 Electricity Distribution Businesses) "Submission to the Commerce Commission on input methodologies review: Update on the cost of capital" (5 February 2016), p. 30; Transpower "Update paper on the cost of capital" (5 February 2016), p. 11; Aurora "Input methodologies review: Update paper on the cost of capital topic" (5 February 2016), p. 2.

[229] Contact Energy submission on the IM review draft decisions paper "Input methodology review" (4 August 2016), p.35.

[230] Commerce Commission "Input methodologies review decisions – Topic paper 4: Cost of capital issues" (20 December 2016), p. 661 – 673.

[231] Commerce Commission "Input methodologies review decisions – Topic paper 4: Cost of capital issues" (20 December 2016), p. 671.

[232] Commerce Commission "Fibre input methodologies: Main final decisions - reasons paper" (13 October 2020), p. 6.647.

[233] Commerce Commission "Fibre input methodologies: Main final decisions - reasons paper" (13 October 2020), p. 6.643 - 6.873.

Is there other experience that could help deal with these issues?

6.104 The issues raised in this chapter relate to specific elements of our approach to estimating the cost of capital. While regulators in different countries take different approaches to estimating the cost of capital, the substance of the issues that we raised in this chapter have also been dealt with in some form by other regulators.

6.105 We highlight some of the work that has been undertaken by Australian and UK regulators since our 2016 review.

6.106 The AER in Australia is currently undertaking a review of its cost of capital methodology for its 2022 rate of return instrument. They have put out a range of working papers that may be of relevance to our present review, including to some of the issues raised in this chapter. For example, the 'Rate of Return Omnibus Papers' working paper discusses a range of issues relating to estimating the cost of capital.[234] The AER has also published a separate working paper on the term of the risk-free rate.[235]

6.107 The UK Regulators Network (**UKRN**) in the UK published a cost of capital report in 2018.[236] The report investigates the role of the cost of capital in the regulation of UK utilities, including methodological issues involved with estimating the cost of capital. The report makes a number of recommendations on how the cost of capital can be based on academic evidence and investment practice.[237]

6.108 With particular reference to airports businesses, the UK Civil Aviation Authority (**UK CAA**) is currently consulting on its initial proposals for Heathrow Airport Limited's H7 price control review.[238] As part of this process, the UK CAA acknowledges the particularly challenging circumstances raised by the COVID-19 pandemic which also impact on investors' likely future expectations of airports' exposure to systematic risk.

6.109 Specifically, on estimating the WACC parameters, the UK CAA notes the uncertainty caused by the pandemic and intends to consider a broad range of evidence in estimating the different parameters.[239] The UK CAA also commissioned Flint to

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[234] AER "Overall rate of return, equity and debt omnibus – Final working paper" (December 2021).

[235] AER "Term of the rate of return & Rate of return and cashflows in a low interest rate environment – Final working paper" (September 2021), Part A – Term of the rate of return.

[236] UKRN "Estimating the cost of capital for implementation of price controls by UK Regulators" (2018); Ofgem "RIIO-2 Final Determinations – Finance Annex (REVISED)" (3 February 2021).

[237] UKRN "Estimating the cost of capital for implementation of price controls by UK Regulators" (2018), Section 4.4.

[238] Civil Aviation Authority "Economic regulation of Heathrow Airport Limited: H7 Initial Proposals – Summary" (October 2021).

[239] Civil Aviation Authority "Economic regulation of Heathrow Airport Limited: H7 Initial Proposals Section 2: Financial issues" (October 2021), p. 9.8 - 9.9.

evaluate the implications of the pandemic for the future assessment of beta for Heathrow Airport.[240]

6.110 The Competition & Markets Authority (**CMA**), in its PR19 redeterminations in the water sector, considered the impact of whether and to what extent changes in observed betas due to the pandemic represented changes in systematic risk.[241]

What IM changes could address these issues?

6.111 The estimation of the cost of capital is not a mechanical task – the available tools used to estimate the cost of capital are imperfect, the data can be hard to obtain or unreliable and can change over time, older data can be reinterpreted in new ways, and newer data may call into question previous assumptions. Mis-estimation of the WACC can have negative outcomes for regulated suppliers and consumers.

6.112 In reaching our decisions on the cost of capital, our regulatory challenge is to determine a cost of capital for Part 4 suppliers that is consistent with the cost of capital that would be faced by firms in workably competitive markets, ie, neither too high, nor too low, such that we give effect to the outcomes in the Part 4 purpose statement.

6.113 The issues discussed are important for us to consider as part of this review where we can consider the cost of capital parameters together and determine parameters and methodologies that reflect a reasonable, and commercially realistic, cost of capital given investors' exposure to risk.

6.114 We will apply our draft IM framework and consider the views of stakeholders and evidence gathered to inform our decisions on reviewing and updating the parameters used to estimate the cost of capital in the IMs.

What further information is needed to advance our thinking?

6.115 We have previously considered the issues outlined above in depth, so would generally require new evidence or reasoning on why a change to the IMs would better promote the purpose of Part 4.

Invitation to make a submission

6.116 We invite submissions on any of the issues identified in this chapter, as well as on any other cost of capital issues interested parties consider we have not identified or previously addressed adequately. We encourage interested parties to use our draft

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[240] Flint on behalf of the Civil Aviation Authority "Estimating Heathrow's beta post-COVID-19" (August 2021).

[241] Competition & Markets Authority, "Anglian Water Services Limited, Bristol Water plc, Northumbrian Water Limited and Yorkshire Water Services Limited price determinations – Final report" (17 March 2021),p. 9.493.

IM review framework to show why the relevant issues should be prioritised and resolved in the IM review.

6.117 We note that we shall be undertaking a confidential debt survey as part of the review and so will be actively contacting suppliers to seek further information.

Chapter 7 CPPs and in-period adjustments to price-quality paths

Purpose of this chapter

7.1 This chapter sets out how we intend to review the flexibility in the IMs for price-quality paths to respond to an upcoming period of rapid change in the policy environment and technology. The chapter is most relevant to GPBs and EDBs on DPPs or CPPs, and to Transpower on an IPP.

Structure of this chapter

7.2 The structure of this chapter is:

7.2.1 Key issues in this chapter.

7.2.2 What is the topic area?

7.2.3 What issues have been raised on this topic for consumers and suppliers?

7.2.4 Have we previously looked at this topic or these issues?

7.2.5 Is there other experience that could help deal with these issues?

7.2.6 What further information is needed to advance our thinking?

Key issues in this chapter

7.3 This chapter covers the policy aspects of the review of price-quality path flexibility mechanisms as an overall package. The review of the effectiveness of existing individual reopeners within that package of mechanisms will be covered in the review described in Chapter 9 of this paper.

7.4 We propose to consider the mechanisms in the IMs for adjusting, reopening or replacing price-quality paths, ranging from pass-through costs and recoverable costs, through to reopener mechanisms and then to IM requirements for CPPs (for suppliers subject to default/customised price-quality regulation).

7.5 One key issue this chapter proposes for the IM Review is about how we set price-quality paths based on forecast values that differ from the actual outturn values, and the likely difficulty in forecasting the pace of change from decarbonisation. Such change could include greater than normal uncertainty about customer demand caused by decarbonisation (among other things), so that greater flexibility might be needed for in-period adjustments to an electricity distribution, gas pipeline, or electricity transmission price-quality path.

7.6 We expect that much of the work in this regard will fall to price-quality path wash-ups and other mechanisms drafted into the price-quality path determinations. However, we expect that changes to enable those mechanisms will be required in the IMs (eg, to enable the results of wash-up calculations to be carried forward between regulatory periods).

7.7 We were required by the Act to set IMs for when price-quality paths may be reconsidered.[242] These are referred to in the IMs as the price-quality path reconsideration provisions, but we generally refer to them as price-quality path 'reopeners' (**reopeners**).

7.8 Another key issue proposed in this chapter is about how well the CPP arrangements in the IMs are working and what might make them work better. Unlike a DPP reopener provision which changes the price-quality path during the DPP regulatory period, a CPP replaces the existing DPP and starts a new regulatory period.

7.9 We intend to review the effectiveness of the CPP process requirements and information requirements in the IMs based on feedback from recent CPP implementations. This would include evaluating whether there is a need for a 'single-issue' CPP (ie, a CPP that focuses on only a single incremental change to the existing price-quality path), or whether specific new reopener mechanisms would be more effective.

7.10 When we approve a Transpower major capex project (**MCP**) under the provisions in the Capex IM determination, we are required by the Transpower IMs to reopen Transpower's IPP during the regulatory period to reflect the forecast revenue impact of the MCP on Transpower's price path. Under this in-period adjustment topic, we intend to consider the effectiveness of that reopener mechanism.

7.11 Once a price-quality path is set, the general rule is that it cannot be reopened on the grounds of a change in IMs.[243] Accordingly, any changes we make as a result of this IM Review (including to reopeners) will in most cases not apply until the next EDB DPP period in 2025, the GPB DPP period in 2026, or the Transpower IPP period in 2025. There are limited exceptions to these cases, such as when a CPP is set part way through a DPP regulatory period, in which case amended IMs can apply.

What is the topic area?

7.12 This topic area deals with how much flexibility the IMs allow for price-quality paths that we have set to respond within regulatory periods to an upcoming period of rapid change in the policy environment and technology:

[242] Section 52T(1)(c)(ii) of the Act.

[243] Section 53ZB(1).

7.12.1 along the regulatory continuum for EDBs and GPBs, stretching from the DPP to a CPP (see below for examples of mechanisms that apply across the price-quality path continuum); and

7.12.2 for Transpower under its IPP (similar mechanisms apply).[244]

7.13 This topic area continues work that we carried out in the 2016 IM Review. The regulatory continuum we are referring to is described in Figure 1.1 and Table 3 in Chapter 1.

7.14 The topic area applies to Transpower, which is regulated under an IPP, and to EDBs and GPBs that are regulated under a price-quality path (ie, a default/customised price-quality path (ie, a DPP or a CPP)).

7.15 The topic also covers how other mechanisms for managing uncertainty and providing flexibility fit around those main settings, including:

7.15.1 pass-through costs;[245]

7.15.2 recoverable costs;[246]

7.15.3 using a forward-looking approach to the forecasting for setting DPP price paths, rather than historical expenditure, similar to how CPP price paths are set;[247]

7.15.4 contingent expenditure mechanisms;[248] and

7.15.5 price-quality path reopeners within regulatory periods.[249]

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[244] In Chapter 8 we also propose to separately consider whether the IMs governing approval of Transpower's investments also allow for sufficient flexibility to enable Transpower to respond through its investments to changes to the market and environment in which it supplies electricity transmission services.

[245] For example, in the case of EDBs, see Commerce Commission "Commerce Commission Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26" (28 September 2012), clause 3.1.2.

[246] For example, in the case of GPBs, see Commerce Commission "Gas Distribution Services Input Methodologies Determination [2012] NZCC 27" (28 September 2012), clause 3.1.3.

[247] For example, see the definition of "opex forecast" in the EDB CPP IMs in Commerce Commission "Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26" (28 September 2012).

[248] For example, in the case of Transpower, see Commerce Commission "Commerce Act (Transpower Input Methodologies) Determination 2010 [2012] NZCC 17" (29 June 2012), clause 3.7.4(4); and Commerce Commission "Transpower Capital Expenditure Input Methodology Determination [2012] NZCC 2" (31 January 2012), clauses 2.2.2(6) and (7).

[249] For example, in the case of Transpower, see Commerce Commission "Commerce Act (Transpower Input Methodologies) Determination 2010 [2012] NZCC 17" (29 June 2012), clause 3.7.4(1).

7.16 The flexibility mechanisms we propose to consider in this topic also apply to GPBs which are also subject to default/customised price-quality regulation.[250] An IM issue (the capex risk event reopener) we are considering alongside our draft decisions on Gas DPP3 could be further considered for possible wider application under this IM Review.[251]

What issues have been raised on this topic for consumers and suppliers?

7.17 We are interested in hearing from you on whether the existing reopeners and other in-period flexibility mechanisms in the EDB IMs, GPB IMs and Transpower IMs are effective.

7.18 In considering effectiveness and cost efficiency of reopeners, we also seek your views on the extent to which introducing additional in-period flexibility mechanisms might also have effects of:

7.18.1 blurring the respective roles of the DPP as the relatively low-cost and generic approach and the CPP as the price-quality path which responds to the specific circumstances of a specific supplier, potentially creating greater regime complexity and greater regulatory cost for stakeholders and the Commission;

7.18.2 changing existing policy settings, such as the 1% revenue threshold which applies to a number of existing reopeners and sets a financial materiality threshold for reopening a price-quality path; and

7.18.3 causing asymmetric impacts on the incentives of price-quality path settings, as suppliers might be expected to only apply to the Commission to reopen their price-quality path when the resulting impact on the price-quality path is in their favour.

7.19 Key price-quality path IM issues that we and stakeholders have identified to date for this topic and under which we could consider those effects include:

7.19.1 considering whether there is appropriate flexibility in the current EDB and GPB DPP and CPP reopeners, Transpower IPP reopeners, flexibility mechanisms, and other mechanisms for managing uncertainty;

7.19.2 reviewing our existing policy on the use of reopener thresholds and considering how that policy would apply to any new reopeners;

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[250] Commerce Commission "Default price-quality paths for gas pipeline businesses from 1 October 2022 – Draft reasons paper" (10 February 2022).

[251] Commerce Commission "Proposed amendments to input methodologies for gas pipeline businesses related to the 2022 default price-quality paths - Draft reasons paper" (10 February 2022).

7.19.3 reviewing how other mechanisms for managing uncertainty and flexibility fit between a DPP and a CPP;

7.19.4 reviewing the effectiveness of the current CPP process requirements and information requirements based on feedback from the Orion, Powerco, Wellington Electricity and Aurora CPP implementations;

7.19.5 evaluating how CPPs currently deal with uncertainty, identifying any substantive gaps in design, identifying how knowledge of the CPP regime might be improved, and working out whether the requirements can be simplified to be more outcome focussed; and

7.19.6 evaluating whether there is a need for a single-issue CPP, or whether specific reopener mechanisms would be more effective, including considering:

7.19.6.1 an alternative CPP design (ie, evaluate the potential effectiveness of a single issue CPP as an increment to the existing price-quality path);

7.19.6.2 whether a single-issue CPP would be cost-effective for an applicant and the Commission;

7.19.6.3 whether a single-issue CPP would support or undermine the effectiveness of the DPP regime;

7.19.6.4 what the application process and information requirements would look like;

7.19.6.5 how information requirements could act as a gating threshold mechanism; and

7.19.6.6 what our evaluation process would look like (eg, our use of a Verifier).

7.20 Wellington Electricity Lines Limited (**Wellington Electricity**) submitted on our open letter on the effectiveness of the DPP/CPP continuum:[252]

> The current regulatory model is a barrier to EDB's delivering their carbonisation initiatives. The DPP framework may not provide the funding capacity needed and the CPP is cumbersome and expensive to apply, and its application is too uncertain for an EDB to be confident that they will be made whole for their investment…

[252] Wellington Electricity "Feedback on fit for purpose regulation" (28 May 2021).

> We support refining the current regulatory framework to provide EDBs with a price path which has the flexibility to meet changing demand, changing customer services and new delivery solutions.

7.21 A key theme of submissions on our open letter was the need for flexibility; that it will not be possible to perfectly set price-quality paths during the future period of change, so greater flexibility will be needed for in-period adjustments to a price-quality path (ie, a DPP, CPP or IPP).

7.22 The following are relevant excerpts on the topic of price-quality path flexibility and reopeners from submissions we received on our open letter:

7.22.1 Alpine Energy Limited (**Alpine Energy**):[253]

> The Commission foresaw the disruption and uncertainty that decarbonisation would bring to the electricity industry when resetting the [EDB] DPP in 2019. To address the disruption and uncertainty, the Commission amended the reopener incentive in the IMs…
>
> However, the Commission constrained the reopener incentive in several ways, including by-
>
> - Setting the collar so that the additional expenditure must value at least 1% of forecast net allowable revenue or $2 million (whichever is less);
> - Setting a cap of $30 million for the cumulative additional expenditure for all projects applied for in any disclosure year; and
> - Requiring that the investment be evidenced as being required to a high degree of certainty.
>
> When the Commission set these constraints as an industry, we had limited understanding of the magnitude of the investment needed to manage the new demand and low carbon technologies to deliver a decarbonised future…
>
> The collar at 1% of net forecast allowable revenue, or $2 million (whichever is least), is material. Further, the IRIS imposes a disincentive to risk expending more than what was set under the DPP allowances. When setting DPP3, the Commission recognised the disincentive created by the IRIS to undertake investment in response to new sources of demand and generation on the EDBs networks. However, the Commission then constrained the reopener incentive with a collar, which represents a material disincentive negating the incentive to apply for a reopener…
>
> The reopener constraints, although well-intended, represent a significant barrier to an EDB successfully accessing the funding needed to invest in their networks to the level required to support decarbonisation under the DPP. Without appropriate reopener provisions, EDBs will be forced to put a CPP application to the Commission to fund the investment required to meet the government's decarbonisation goals. We urge the Commission to review the reopener incentives as a priority, when considering how it will support the government's decarbonised future.

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[253] Alpine Energy "Feedback on fit for purpose regulation" (28 May 2021).

7.22.2 Aurora Energy Limited (**Aurora**):[254]

> The Commission may need to consider whether five-yearly resets of the default price-quality path (DPP) are providing enough flexibility for EDBs to adapt to changes as they arise and, if not, whether there are other mechanisms that it could introduce so that EDBs have opportunities to access additional revenue in advance of the next regulatory control period.
>
> The Commission could consider whether relying on the customised price-quality path (CPP) mechanism as a means for EDBs to access additional funding for decarbonisation is still appropriate given the changing environment. The Commission may like to consider whether there are other more flexible and timely mechanisms that it could introduce into the Part 4 framework that are less complex and resource intensive than the current CPP mechanism. That complexity and resource intensiveness could deter EDBs from seeking additional allowances for necessary future innovation funding.
>
> It is equally important for the Commission to be alert to any impediments that are not yet evident and ensure that it responds as they become apparent.

7.22.3 ENA:[255]

> New Zealand's path to carbon zero is in its early stages of development and will only become fully formed over the course of the upcoming [EDB] 2025-2030 regulatory period. Therefore, the IM regime [must be] flexible enough to promptly respond to material changes in government policy, legislation, and the regulatory environment within the regulatory period.
>
> This flexibility may be provided by re-openers, pass-throughs, or other flexibility mechanisms. Importantly, this flexibility must be delivered in such a way that it avoids the need for EDBs to go through the time and resource intensive customised price-quality path (CPP) process, or administratively cumbersome application processes. Consideration should be given to the development of contingent allowances that automatically trigger on the occurrence of specific events.
>
> The Part 4 regime does not provide for EDBs or groups to initiate a re-opener or pass-through for issues that impact multiple EDBs (i.e. regulatory change events). This leave EDBs with a stark choice of individually subjecting themselves to CPP processes to address a sector-wide issue, or suffering materially reduced returns. The ENA's view is that flexibility mechanisms (re-openers or pass through) should be incorporated into the Part 4 regime to allow for collective application. To ensure consumers reap the benefits of EDB investment in innovation facilitated by the additional [flexibility] mechanisms, they should be symmetric in their application.

7.23 Several key themes were identified in relation to this topic from our December 2021 workshop.[256] Themes include:

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[254] Aurora "Open letter – ensuring our energy and airports regulation is fit for purposes- Submission on the Commerce Commission's open letter" (28 May 2021).

[255] ENA "Fit for purpose Part 4 regulation" (28 May 2021).

[256] Commerce Commission "Workshop on the impact of decarbonisation on electricity lines services – Summary of stakeholder view from workshop held 7 December 2021".

7.23.1 price-quality path reopeners need to be more dynamic and streamlined, and provide more flexibility for uncertainty (eg, pass-through costs, streamlined price-quality path reopener mechanisms and simplified CPP options);

7.23.2 inclusion of a new pass-through cost for an EDB's carbon abatement cost under the Climate Change Response Act 2002;

7.23.3 uncertainty of timing of the need for investment under a high growth scenario resulting from decarbonisation;

7.23.4 consideration of a price-quality path reopener specifically targeted at decarbonisation, similar to the reopener introduced by the Office of Gas and Electricity Markets in Great Britain (**Ofgem**) in RIIO-2;[257] and

7.23.5 the need for us to adopt a more integrated approach to our regulation of EDBs.

7.24 The ENA noted in its workshop submission to us:[258]

> New Zealand's exact path to carbon zero is still unknown. It will only [be] fully recognisable in the 2025-2030 regulatory period. Therefore, the regulatory regime must be flexible enough to respond to material changes in technology, government policy, legislation, and customer behaviour within regulatory periods.
>
> The existing regime provides for both limited re-openers and resource-intensive customised price-quality path applications. ENA recommends the Commission consider development of contingent allowances, pass-throughs, or other flexibility mechanisms that automatically trigger on the occurrence of specific events. These flexibility mechanisms should allow for collective application. Specifically, the regime must include a pass-through of EDB's carbon abatement costs under the Climate Change Response Act 2002.

7.25 Orion New Zealand Limited (**Orion**) supported the ENA submission on our open letter and it submitted the following relevant points on the topic in this chapter:[259]

> The current regulatory regime provides no reopeners for significant step changes in cost inputs that affect the sector due to Covid-19 or any other similar emergent event, and we are unsure if this event would be accommodated by a catastrophic event reopener…
>
> The Commission should consider an opex capability reopener or uplift allowance distributors can draw-down on for new capability necessary during the reset period…

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[257] RIIO-2 is the second set of price controls implemented by Ofgem under its Revenue = Incentives + Innovation + Outputs (RIIO) model for 2021-2028.

[258] ENA "Feedback on the impact of decarbonisation on electricity lines services" (21 December 2021).

[259] Orion "Feedback on fit for purpose – open letter priorities for energy networks (the Paper)" (28 May 2021).

> Capex reopeners were introduced at the 2020 reset and we have been monitoring their applicability to upgrades, new commercial connection and process heat conversion.
>
> At a high-level, the current threshold of $2m appears to be appropriate, from our perspective, for system growth projects however our experience is that an alternative approach would provide better incentives for investment in relation to customer driven new connection and capacity upgrade work.
>
> We have three examples of large connections where a capex reopener was considered but could not be applied because the existing threshold is too high.

7.26 Alpine Energy said in its workshop submission:[260]

> The uncertainty around the cost and timing of investment associated with decarbonisation is currently high. One idea is to have expenditure categories and allowances specific to decarbonisation. A decarbonisation expenditure category could be determined, assessed, applied, and recovered, and allowances could also be set, monitored, and incentivised using approaches specific to decarbonisation expenditure.
>
> As discussed above, we believe that the reopener provisions are not appropriate for the step-change in expenditure needed to support decarbonisation. The reopeners provisions have been constrained and set using a BAU base. The Commission could determine a decarbonisation-specific reopener. The decarbonisation reopener could take account of the unusual nature of the investments including, the size of the investment required, the timing of rolling the investment into the regulatory asset base (i.e., expensed vs. commissioned), avoiding first-mover disadvantage, and variability of the investment (i.e., alternatives to traditional poles and wires solutions).

Have we previously looked at this topic or these issues?

7.27 The EDB IMs and the Transpower IMs were reviewed in the 2016 IM Review, and we published our final IM decisions on the EDB CPP requirements in December 2016.[261, 262, 263]

7.28 In our 2016 IM review decisions, we said:

> **Overview of the CPP requirements topic**
>
> X4. The review of the input methodologies (IMs) has provided us with an opportunity to consider what improvements can be made to how we implement the default/customised price-quality regime, as well as the specific requirements for CPPs. In particular, we have considered:

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260 Alpine Energy "Further views on ensuring our energy and airports regulation is fit for purpose" (21 December 2021).

261 Commerce Commission "Input methodologies review decisions – Consolidated reasons papers" (20 December 2016).

262 Commerce Commission "Input methodologies review decisions – Report on the IM review" (20 December 2016).

263 Commerce Commission "Input methodologies review decisions – Topic paper 2: CPP requirements" (20 December 2016).

> X4.1 How default price-quality paths (DPPs) and CPPs work together — when setting the initial IMs in 2010, we did not have practical experience of how the two mechanisms would interact.
>
> X4.2 Specific improvements to the CPP requirements — utilising experience with the first CPP proposal, and taking account of developments in information disclosure since the IMs were set in 2010…
>
> X7. The changes explained in this topic paper are in the context of our view that fundamentally the underlying intent of our IMs for the DPP/CPP regime remains sound. We consider the IM changes we have made to be improvements aimed at giving better effect to this intent.
>
> X8. Accordingly, the majority of our changes are to reduce cost and complexity, and improve the certainty provided by how we specify the IMs.

7.29 The GPBs' CPP requirements were also later reviewed, and we made our IM decisions on those in December 2017.[264]

7.30 We amended the Transpower IMs in August 2019 to introduce a new reopener for enhancement and development (**E&D**) base capex due to the high level of uncertainty of the estimates of E&D expenditure for the RCP3 regulatory period.[23] We made this change to appropriately balance the risks to consumers and Transpower that an approved E&D expenditure amount would be too high or too low.

7.31 We also noted in our reasons paper for August 2019 IM amendments that Transpower had proposed an amendment to the IMs to allow for a price path reopener because of additional costs caused by the implementation of revised Transmission Pricing Methodology (**TPM**) Guidelines.[24] We said:

> However, we do not consider it necessary to introduce a provision to explicitly allow for a reopener due to additional costs caused by the implementation of the revised TPM Guidelines. This is because s 54V(5) of the Act provides for a reopener provision outside of the IMs in conjunction with the Electricity Authority, and have effect without us having to apply the 1% revenue requirement that would apply if we otherwise used clause 3.7.2 of the IMs (ie, change event reopener) to reopen the price path.

7.32 We discussed the respective regulatory roles of the EDB DPP and EDB CPPs in the Framework chapter of our reasons paper on the setting of the EDB DPP that commenced from 1 April 2020 (**EDB DPP3**).[265] Key relevant points from that paper include:

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[264] Commerce Commission "Input methodologies review decisions – Topic paper 2: CPP information requirements for gas pipeline businesses" (13 December 2017).

[265] Commerce Commission "Default price-quality paths for electricity distribution businesses from 1 April 2020 – Final decision, Chapter 3" (27 November 2019).

> 3.15 To meet the relatively low-cost purpose of DPP regulation, we must take into account the efficiency, complexity, and costs of the price-quality regime as a whole when resetting the DPP. What this means in practice will vary over time and between sectors.
>
> 3.16 In the DPPs we have set since we determined the IMs, we have developed a combination of low-cost principles:
>
> 3.16.1 applying the same or substantially similar treatment to all suppliers on a DPP;
>
> 3.16.2 setting starting prices and quality standards or incentives with reference to historical levels of expenditure and performance;
>
> 3.16.3 where possible, using existing information disclosed under ID regulation, including suppliers' own AMP forecasts; and
>
> 3.16.4 limiting the circumstances in which we will reopen or amend a DPP during the regulatory period.

7.33 We also said in that reasons paper:

> 3.25 We do not agree with Vector's assertion that the DPP framework unfairly penalises distributors facing specific circumstances. Our consistent approach to DPP/CPP regulation – based on section 53K of the Act – is that CPPs are the appropriate tool for responding to circumstances that are specific to an individual distributor and that cannot be accommodated in a low-cost way. DPPs by contrast deal with issues facing distributors generally, in a relatively low-cost way and applying a generic approach.
>
> 3.26 A DPP is not intended to deal with circumstances that require significant scrutiny of costs and/or quality targets of a particular distributor. Where a DPP cannot be sufficiently tailored to meet specific distributor circumstances, two additional options already exist within the existing Part 4 regulatory framework to appropriately cater for these.
>
> 3.27 The first of these is a DPP quality reopener where a distributor believes it may not be able to meet the quality standards set under a DPP. The precise requirements for seeking a quality standard variation are set out in the existing regulatory framework.
>
> 3.28 The second option is for a distributor to consider applying for a CPP. A CPP can be tailored to meet the specific needs of a distributor's customers, and also provides the flexibility to generally deal with uncertainties that an individual distributor may encounter.

7.34 We consider the current Part 4 reopeners should be compared with the reopener mechanisms designed for other contexts. In October 2020, we published our final decisions on the regulatory processes and rules IM for the Fibre sector.[266, 267]

7.35 Specific CPP and reopener issues proposed for our review include:

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[266] Commerce Commission "Fibre input methodologies – Main final decisions – reasons paper" (13 October 2020).

[267] We determined the Fibre IMs in accordance with Part 6 of the Telecommunications Act 2001. See New Zealand Legislation web site.

7.35.1 the scope of consequential changes that are triggered by a decision to reopen: currently the WACC change reopener for EDBs and GPBs allows us to amend the vanilla WACC for a CPP following a DPP WACC determination.[268] Consideration could be given to whether it should also allow us to amend the post-tax WACC as well, which would apply to the time value of money adjustment in the wash-up account;

7.35.2 whether price-quality paths should be reopened when the impact is less than the current error event threshold: there could be consideration of whether to modify the current reopener or introduce a new reopener for errors that do not meet the 1% threshold in the 'error event' or where a threshold is not practical to apply, such as quality standards. The error event provision in the Fibre IMs does not include a trigger threshold;[269] and

7.35.3 whether price-quality paths should be reopened when there is a change in GAAP: there are a number of instances in the IMs where there are extensive cross-references to GAAP and problems can arise in interpreting and applying the IMs when the accounting standards that form GAAP change during a regulatory period. This is particularly the case for the valuation of assets.[270] We recognised this by including a price-quality path reopener in the Fibre IMs for GAAP changes.[271]

7.36 Our experience with applying the reopener provisions has highlighted potential issues for consideration in this IM Review. In June 2021, Unison Networks Limited (**Unison**) applied to us to 'reopen' its DPP3 price-quality path to increase its allowable revenue to cover an 'unforeseeable major capex project'[272] to connect Contact Energy Limited's (**Contact**) Tauhara generation station and Unison's distribution network. Under the EDB IMs, we were able to:

7.36.1 reconsider the DPP that applies to Unison if we were satisfied the project met the criteria for an 'unforeseeable major capex project'; and

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[268] Commission "Electricity Distribution Services Input Methodologies Determination 2012" [2012] NZCC 26, clause 5.6.7(2) and (4); clause 5.6.8(3) and (5).

[269] Commission "Fibre Input Methodologies Determination 2020" [2020] NZCC 21.

[270] For example, refer to Commission "Electricity Distribution Services Input Methodologies Determination 2012" [2012] NZCC 26, Part 2, subpart 2 Asset valuation.

[271] Commission "Fibre Input Methodologies Determination 2020" [2020] NZCC 21.

[272] Commission "Reconsideration of default price-quality path for Unison Networks Limited – unforeseeable major capex project to supply Tauhara geothermal power station – Final decision" (4 March 2022).

7.36.2 after reconsidering the price-quality path, reopen and amend Unison's DPP price-quality path to include the efficient costs that a prudent non-exempt EDB would incur in undertaking the project.

7.37 Unison's application sought additional opex from the fourth disclosure year of the DPP3 regulatory period to cover insurance for the project's assets. The position we set out in our draft decision was that the reopeners under the EDB IMs for unforeseeable and foreseeable major capex projects are limited to capex, and they exclude opex.

7.38 In response to our draft decision, Aurora submitted that an alternative interpretation of the EDB IMs was available to us, which would lead to opex being eligible for consideration.[273] Aurora stated that the EDB IMs do not specifically restrain us from considering opex impacts. It stated that:

> In Aurora's view, it is entirely appropriate that no restriction [on providing for opex via a reopener under clauses 4.5.5A and 4.5.5B] exists, as non-network alternatives can be expected to play an increasingly pivotal role in the delivery of electricity lines services. It is entirely conceivable that future [unforeseeable major capex projects], while remaining predominantly capital expenditure, may also include a material component of operational expenditure.
>
> In Aurora's view, the additional insurance premia identified by Unison is clearly consequential to the [unforeseeable major capex project] and, given that the Commission is not constrained from assessing that expenditure, should be included in the DPP reopening considerations.

7.39 In our final decision on Unison's application, we noted that we remain of the view that the wording and policy of the two reopeners considered in our Unison decision and the related provisions do not currently accommodate opex associated with capex, such as operating, maintaining, and, as in that case, insuring assets. However, we do acknowledge that non-network alternatives to capex (ie, involving investment in opex) are likely to play an increasingly important role in the supply of electricity lines as decarbonisation and electrification become greater priorities.

7.40 We noted that the application of the EDB IMs to opex alternatives was beyond the scope of our Unison decision, but the changing external context and pace of electrification now presents an opportunity in the IM Review to consider the scope and wording of the two reopeners in greater depth.[274]

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[273] Aurora "Reconsideration of default price-quality path for Unison Networks Limited" (15 December 2021).

[274] Commerce Commission "Reconsideration of default price-quality path for Unison Networks Limited – unforeseeable major capex project to supply Tauhara geothermal power station – Final decision" (4 March 2022), p. 4.14.

Is there other experience that could help deal with these issues?

7.41 We invite your submission on regulatory mechanisms (other than those raised in this chapter) that you have seen developed and applied in response to the in-period flexibility issues identified in this chapter. For example, Vector quoted from a speech by Jonathan Brearley, CEO of Ofgem at Ofgem's vision for a net zero future event in October 2020 with respect to how the RIIO-2 price control (which is equivalent to the EDB DPP) will work:[275]

> In its forward work programme for 2021/2022, Ofgem has identified the need for it to take an active role in facilitating investment in electricity distribution networks and is continuing to develop an agile approach to the operation of regulatory incentive mechanisms. It has also highlighted the need for it to work collaboratively with government to enable and encourage their industry *"to prepare for the future, by setting frameworks to help manage uncertainty, and to maximise the opportunities to enable a smart, lower cost zero carbon future".*

7.42 In its submission on the decarbonisation workshop, Alpine Energy suggested we look at examples of targeted price-quality path reopeners for decarbonisation:[276]

> The idea of targeted reopeners is not new. In December 2020, Ofgem issued its final determinations for RIIO-2 that included mechanisms to address the uncertainty around the development of the British Government net-zero targets during the price control period. The Net Zero and Re-opener Development Fund use it or lose it allowance was developed to allow Network Licensees (electricity transmission, gas distribution, and gas transmission) to bring forward projects that may be low in materiality but high in consumer value through reopeners…
>
> The allowances can be spent at any time over the price control period (i.e., over the five years). The Network Licensee manages the spending profile so that it does not need to spend to its total allowance equally over each year of the control period. While [the use it or lose it allowance] does not currently apply to electricity distribution, Ofgem will soon start the RIIO-ED2 reset for the five years 2023-2028. It is expected that re-openers specific to electricity distribution will be developed along the same lines as the net-zero reopeners applicable to Network Licensees.

What further information is needed to advance our thinking?

7.43 Overall, we seek your views on the capacity for price-quality paths that we set to flexibly respond to an upcoming period of rapid change in the policy environment and technology. Given our current IM mechanisms for adjusting, reopening or replacing price-quality paths, ranging from pass-through costs, recoverable costs, through to reopener mechanisms and then to IM requirements for CPPs, we invite you to tell us whether there are issues to be resolved in the IMs, particularly:

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[275] Vector "Invitation to comment - Workshop on the impact of decarbonisation on electricity lines services 2021" (21 December 2021).

[276] Alpine Energy "Further views on ensuring our energy and airports regulation is fit for purpose" (21 December 2021).

7.43.1 where uncertainty suggests reopeners or other mechanisms are not adequately provided for in the DPPs, CPPs and the IPP;

7.43.2 the circumstances where you think this is the case, and the reasons why;

7.43.3 your assessment of the materiality of the issues and how they affect the default/customised price-path regime;

7.43.4 how we might rethink the balance between DPP reopeners and CPPs (eg, single issue CPP);

7.43.5 suggestions on simplifications and enhancements to the CPP requirements; and

7.43.6 your view on whether simplification of the CPP requirements would be better achieved by setting any CPP requirements in price-quality path determinations rather than in the IM determinations.

Chapter 8 Transpower investment

Purpose of this chapter

8.1 This chapter considers whether the IMs governing Transpower's investments allow sufficient flexibility to enable Transpower to respond to the impact of potential rapid changes to the market and environment in which it supplies electricity transmission services. We will be considering responses to issues that have arisen from our own experience as well as those that arise in response to market changes.

Structure of this chapter

8.2 The structure of this chapter is:

- 8.2.1 Overview of IMs that apply to Transpower.
- 8.2.2 Incentives to innovate and invest across Transpower IPP regulatory periods.
- 8.2.3 What IM changes could address these issues?
- 8.2.4 Have we previously looked at this topic or these issues?
- 8.2.5 Is there other experience that could help deal with these issues?
- 8.2.6 What further information is needed to advance our thinking?

8.3 The chapter builds on the discussion in Chapter 5 of issues relating to incentives for Transpower to invest within a regulatory period, and over multiple regulatory periods, in a manner that promotes the purpose of Part 4. The chapter complements the discussion in Chapter 7 on in-period adjustments and reopeners of Transpower's price-quality path, which are also ways the IMs accommodate uncertainty.

Overview of IMs that apply to Transpower

8.4 The IMs that apply to Transpower are the Transpower IMs and the Capex IM. The Transpower IMs define the building blocks that make up Transpower's regulated revenue.[277]

8.5 The Capex IM sets out requirements that Transpower must meet in order to obtain approval for proposed capex, including required consultation with interested persons, and the processes for evaluating its proposed investments.[278]

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[277] Commerce Act "Transpower Input Methodologies Determination 2010" [2012] NZCC 17.

[278] Commerce Commission "Transpower capital expenditure input methodology Determination 2012" [2012] NZCC 2.

8.6 The Transpower IMs define the building blocks used to calculate Transpower's regulated revenue. Transpower is currently subject to a five-year price path under its IPP,[279] which is a five-year revenue cap determined using building blocks specified in the Transpower IMs.[280] Along with depreciation, capex investment by Transpower is a key input to rolling forward the value of the RAB.

8.7 Transpower is also regulated under ID requirements, which are based on the Transpower IMs.

Incentives to innovate and invest across Transpower IPP regulatory periods

8.8 Under this topic, we propose to consider the effectiveness and workability of IMs applying to Transpower, which means addressing issues and considering changes to the IMs that promote one or more of the IM Review's three overarching objectives.[281]

Dealing with uncertainty

8.9 We are interested in hearing from you on the effectiveness of Transpower's incentives to innovate and invest within an IPP regulatory period and across regulatory periods.

8.10 A key aspect of this is how the IMs applying to Transpower allow Transpower to deal with the implications of uncertainty about the investment need, the timing of investment, and the magnitude of uncertainty in the forecast of costs.

8.11 Key mechanisms in the IMs applying to Transpower that can deal with various forms of uncertainty and which you may wish to comment on include:

8.11.1 the ability to reconsider the IPP for approved listed projects (ie the provision for approval of contingent capex investments) and approved MCPs;

8.11.2 the ability to apply different capex incentive rates, including the setting of exempt major capex (see also the overall context of incentives discussed in Chapter 5 of this paper);

8.11.3 the approval of staged MCP investments; and

8.11.4 other in-period adjustments and reopeners during an IPP regulatory period (see Chapter 7).

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279 Commerce Commission "Transpower Individual Price-Quality Path Determination 2020" [2019] NZCC 19 consolidating all error corrections and amendments" (7 October 2021).

280 Commerce Act (Transpower Input Methodologies) Determination 2010 [2012] NZCC 17.

281 Commerce Commission "2023 input methodologies review" webpage, scroll down to "Draft framework paper" (20 May 2022).

8.12 In our initial determination of the Transpower IMs in December 2010, we decided that Transpower must roll its RAB value forward for capital additions at cost. Our decision was that no indexation is to be applied in rolling forward the RAB value. In our 2010 reasons paper we noted:[282]

> ...a number of factors will likely constrain the Commission's ability in the short- to medium-term to design regulatory mechanisms that include the ideal incentives and processes for improving Transpower's performance in terms of the Part 4 Purpose. Taking these factors into account, in particular the very high level of Transpower's investment needs over the short- to medium-term, it is appropriate for the IM for rolling forward the value of Transpower's RAB to require a different approach to the roll forward approach for EDBs, at least for the medium-term.

8.13 The question that might now be considered in the IM Review is whether the conditions that gave rise to that different approach for Transpower in 2010 are still applicable or whether there is now an argument that indexation of Transpower's RAB could set a better recovery profile for Transpower's investment, result in a smoother pricing profile at a time of demand growth, and keep the RAB value closer to its replacement value. However, we would need to consider whether such a change would adversely affect the incentive to invest or raise regulatory costs. We consider the issue of indexation of the RAB as it applies to EDBs, GPBs and Transpower in Chapter 5 of this paper.

8.14 In our final reasons paper on the Capex IM at the last IM Review we set out an overview of the updated incentives that now apply to Transpower's transmission investment (see Figure 8.1 below). Figure 8.1 shows the different incentive mechanisms that apply to base capex (ie, capex for projects with a cost below the $20 million base capex threshold), as well as to large asset replacement and refurbishment (R&R) projects, and large enhancement and development (E&D) projects.

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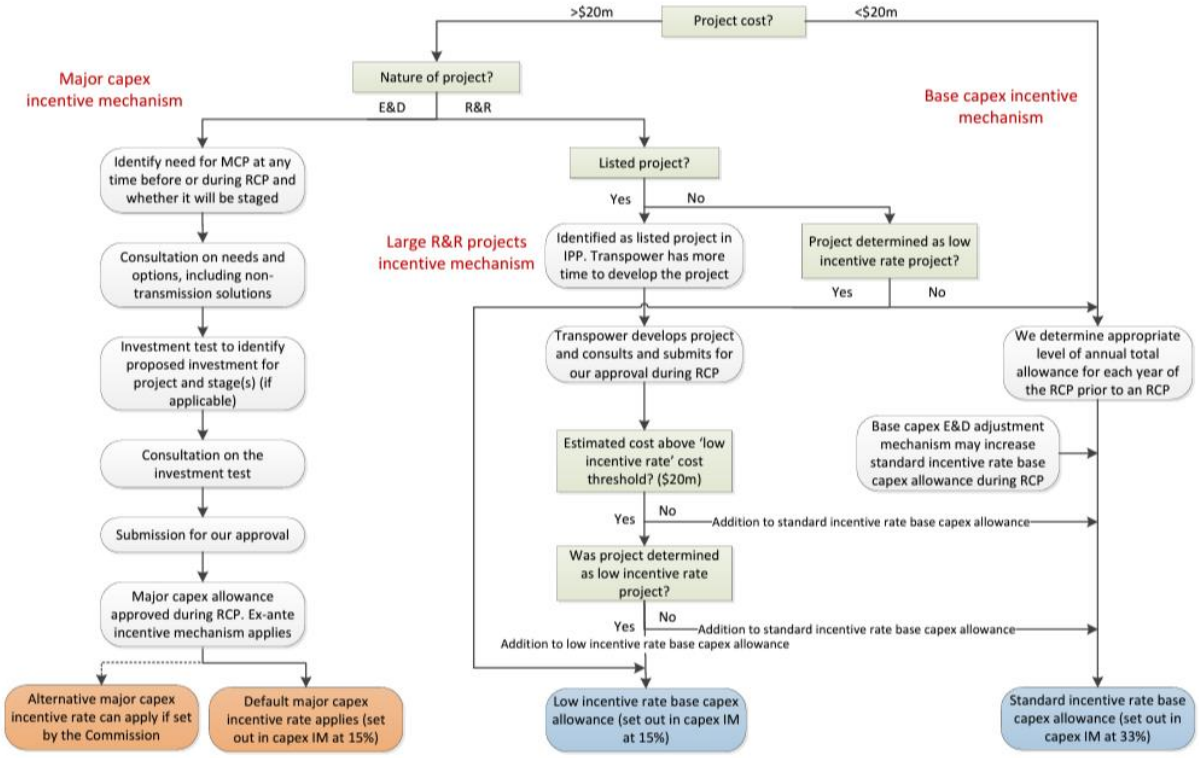
[282] Commerce Commission "Input Methodologies (Transpower) - Reasons Paper" (December 2010).

Figure 8.1: Overview of new capex incentive regime



Source: Transpower capex input methodology review- Decisions and reasons 29 March 2018, page 28.

Impact of increasing transmission connection enquiries to support decarbonisation

8.15 At our decarbonisation workshop in December 2021, Transpower raised the issue of the increasing number of connection enquiries it is receiving on both the demand and generation sides, resulting in an increase in its workload and a need for increased investment.[283] A potential issue to consider in our IM Review is whether the IMs applying to Transpower enable Transpower to be sufficiently responsive to that increase in demand for investment.

[283] Commerce Commission "Workshop on the impact of decarbonisation on electricity lines services – Summary of stakeholder view from workshop" (7 December 2021).

First-mover issue

8.16 We intend to review the Capex IM for barriers to the efficient connection of electricity generation (and particularly renewable generation), electricity demand resulting from the decarbonisation of large industrial users, or the optimal dispatch of generation. This could involve considering whether the IMs applying to Transpower need amending to reflect investment scenarios that were not explicitly considered when the IMs were first set or last reviewed. For example, Transpower is currently consulting on the concept of Renewable Energy Zones (**REZs**) and a potential pilot REZ in Northland.[284,285]

8.17 One issue that the REZ initiatives aim to address is known as the 'first-mover' issue, described by the Energy Efficiency & Conservation Authority (**EECA**) below, which can potentially hamper both generation and electrification of users. An example of an improvement might be whether IMs relating to 'new investment contracts' can be modified to deal with the first-mover capex investment issue to ensure that investment is incentivised and is implemented in stages at an overall least cost.[286]

8.18 On the first-mover issue we received this feedback on our open letter from EECA:[287]

> EECA works with many of New Zealand's largest emitters, many of whom have investigated electrification as a decarbonisation option. A common concern is the apparent cost and complexity of upgrading transmission and distribution connections, and in particular the risk that the first customer may be required to pay for the full cost of an asset which will eventually serve multiple customers. We suggest the Commission actively considers whether this issue can be included in its current review process.

8.19 In its response to our open letter, Transpower suggested that we should consider whether the MCP staging mechanism, introduced into the Capex IM in the 2016 IM Review, will be fit for purpose in addressing, for example, the first-mover issue:[288,289]

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[284] Transpower "Renewable Energy Zones" (2022).

[285] Under the REZ concept Transpower would be looking at a number of potential renewable electricity generators in a defined zone to connect to the transmission grid before Transpower invests. The group of generation investors would collaborate to optimise the grid investments.

[286] A new investment contract is a form of contract defined in the Transpower IMs which is entered into between Transpower and a customer of Transpower, and under which Transpower agrees to provide any new or upgraded transmission assets and the customer agrees to pay charges based on Transpower's cost of providing the new, upgraded or modified grid assets. This form of contract will be referred to in the new TPM in Schedule 12.4 of the Electricity Industry Participation Code as an 'investment agreement'.

[287] EECA "Re: feedback on fit for purpose regulation" (27 May 2021).

[288] Commerce Commission "Transpower capex input methodology review – Decisions and reasons" (29 March 2018), p. 239 – 266.

[289] Transpower "Fit for purpose regulation" (28 May 2021).

> To increase our pace of delivery, we will need to make decisions and commit to investments in circumstances where, in the last two decades, we might have waited for better information. We believe we are not in, or close to, a world where the risks of not investing early enough to enable decarbonisation outweighs the risks of investing ahead of need…
>
> While Transpower recognises the need to enable new transmission demand and generation connections, we are aware that "enable" suggests building ahead of need and without the certainty those connections will be built.
>
> We are considering options for managing such risk, including how staging investments could help and how we can advance our long-lead time projects to match the generation build lead times. Unless they are closely aligned there is a risk that new renewable generation investments are delayed until transmission constraints are removed.

8.20 As EECA noted, the first-mover issue is similar for EDBs. In its response to our open letter, with respect to the first-mover issue at the electricity distribution level, Alpine Energy says:[290]

> We may get some customers that are willing to commit, but those customers risk a first-mover disadvantage. Without long-term funding, we will need the customers who first connect or upgrade, to fund a higher proportion of the initial investment in the network than may be the case for those customers who wait and convert after the assets are built. Astute customers will delay their plant conversion until others have moved first, thereby avoiding first-mover disadvantage. This delay in investment constrains our ability to support our region in meeting New Zealand's decarbonisation goals.

Trade-offs between transmission reliability and the level of investment

8.21 Fonterra Co-operative Group (**Fonterra**) had this to say in response to our open letter:[291]

> The principal performance obligations drive Transpower to build transmission assets to a very high standard which in turn has an associated high capital cost. Often a lower level of reliability is acceptable to some consumers. For Fonterra the cost of decarbonization using electricity is very significant and the ability to trade-off cost against reliability makes decarbonization using electricity even more difficult.

The investment test for major capex in the Capex IM

8.22 Transpower said in response to our open letter:[292]

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[290] Alpine Energy "Feedback on fit for purpose regulation" (28 May 2021).

[291] Fonterra "Submission – Commerce Commission Open Letter – Ensuring our energy and airports regulation is fit for purpose" (May 2021).

[292] Transpower "Response to open letter - Fit for purpose regulation" (28 May 2021).

> We have started our NetZero Grid Pathways (NZGP) project which covers our plans and investments on the backbone of Aotearoa's grid. As part of this project we are seeking input from industry to help determine what specific grid investments may be required, and by when. We are also working hard to ensure the electricity transmission network enables the ongoing transformation of electricity distribution networks from the anticipated addition of distributed energy resources. These developments are set to change how electricity systems grow and operate, and the way in which consumers of all sizes will interact with their energy systems…
>
> We agree with the Commission's view on what the key issues are for the energy sector. We consider the next Input Methodologies (IMs) review to be of strategic importance, as it could be setting the scene for how Part 4 regulation supports arguably this generation's biggest challenge – decarbonising New Zealand's economy…
>
> The current framework has built in flexibility and provides strong incentives for us to deliver efficient and prudent investments. However, we think incremental improvements can be made to the framework to ensure that we are able to identify and act on opportunities for the grid to enable decarbonisation of the economy and to ensure the grid's resilience matches consumers' expectations.

8.23 In its submission Transpower outlined possible incremental improvements to the scope of the major capex investment test:[293]

8.23.1 consideration of factoring in societal benefits in Transpower's investment options analysis;

8.23.2 timeliness of regulatory approvals (eg, including the consideration of the practicalities of the $20M Base capex/Major capex threshold;

8.23.3 approval of funding for resilience of the grid, incentivising innovation for sustainability; and

8.23.4 incentivising innovation for energy transition.

8.24 Transpower indicated it intends to provide us with its analysis and its proposals for changes to the IMs applying to Transpower, in the event the IM Review focuses on the above issues.

Whether the rules allow sufficient flexibility for Transpower

8.25 Another potential issue arising from the decarbonisation workshop is whether a change in flexibility for Transpower is needed in the IMs applying to Transpower, while appropriately sharing risk between Transpower and consumers. This is an issue that we will address though our review of the Capex IM and through our review of the price path reconsideration mechanisms (see also Chapter 7 of this paper).

Timing of review of the Capex IM

8.26 With respect to our IM Review of the Capex IM, Transpower said in its response to our open letter:

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293 Transpower "Response to open letter - Fit for purpose regulation" (28 May 2021), Appendix A.

> The Commission last reviewed the Capex IM in 2018 – following the usual seven year cycle the next statutory review would not be required before 2025. However, we consider that the Capex IM review should be brought forward to align it with the review timeline of the other energy IMs and our own submission for expenditure during the 2025-2029 period (RCP4). If it is not, then any IM amendments relevant to base capex proposals could not be applied until 2030 (start of RCP5). Any major and listed projects would continue to be approved under the existing rules until 2025.

8.27 Our view is that the IMs applying to Transpower would be most effectively reviewed together in parallel.[294] However, we note that certain aspects of the Capex IM, such as the MCP requirements, are less dependent on the Transpower IMs and the timing of the IPP reset, and therefore there could be an opportunity to reconsider the timing of the review of the Capex IM if this is required.

What IM changes could address these issues?

8.28 In our open letter we sought views on New Zealand's decarbonisation and use of new energy sector technologies and business models. In the IM Review we intend to evaluate how well the current combination of requirements in the IMs applying to Transpower are working, including whether new external factors show a need for new mechanisms within the Capex IM, or a need for fine-tuning of the existing mechanisms.

8.29 This could include a review of the effectiveness of the design of the major capex evaluation and approval processes, and consider whether settings and requirements could be changed to make the processes more effective, for example:

8.29.1 changing the $20m threshold level of investment between base capex and major capex;

8.29.2 whether the information published in Transpower's asset management plan, including updated reporting of grid and asset performance measures up to the date of a major capex application, can provide alternative disciplines around capex if the threshold changes;

8.29.3 adjustments to expenditure allowances, such as the provision for contingent expenditure allowances when setting the Transpower IPP; and

8.29.4 considering the potential for requiring Transpower to use an independent verifier.

8.30 We will compare the Transpower capex mechanisms with the appropriate mechanisms designed for Chorus in the Fibre IM regime and consider which, if any, of those could or should be adapted for Transpower.

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[294] Commerce Commission "Notice of intention – Input methodologies review 2023" (23 February 2022).

8.31 We will also compare the IMs that apply to Transpower with the capital expenditure reopener IM amendments considered for Gas DPP3 and, if relevant, consider whether these should be adapted to apply to the Transpower price-quality path reopener provisions. The Gas DPP3 IM amendments considered two reopeners:

8.31.1 the first is a capacity event reopener to allow us to reconsider the price path in the DPP if the supplier can demonstrate it needs additional capacity on its network; and

8.31.2 the second is a risk event reopener that will allow us to reconsider the DPP if the supplier establishes that part of its network will deteriorate to the extent that failing to invest during the DPP period, beyond the allowance already provided, would:

8.31.2.1 materially adversely affect its ability to meet its quality standards; or

8.31.2.2 compromise the safety of any person or the integrity of assets.

8.32 We will consider the results of the review of the external environment and uncertainty in Chapter 4, particularly in relation to the transition to a low carbon economy, that are specific to Transpower.

8.33 We intend to evaluate whether our assessment of the level of uncertainty associated with Transpower capex (base capex, listed projects capex, and major capex) has changed since the last IM Review, and whether this requires changes to the IMs.

8.34 We will evaluate how the IMs applying to Transpower deal with uncertainty, identify any substantive gaps in the integrated design, and consider how Transpower has applied its internal procedures for evaluating and prioritising investment in response to the requirements of the Capex IM.

Have we previously looked at this topic or these issues?

8.35 We reviewed the Transpower IMs in the 2016 IM review in December 2016.[295, 296] We made IM decisions after reviewing the Transpower IRIS in June 2017.[297]

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[295] Commerce Commission "Input methodologies review decisions – Consolidated reasons papers" (20 December 2016).

[296] Commerce Commission "Input methodologies review decisions – Report on the IM review" (20 December 2016).

[297] Commerce Commission "Input methodologies review final decision – Transpower Incremental Rolling Incentive Scheme" (29 June 2017).

8.36 The Capex IM was set in 2012. The review of the Capex IM under s 52Y was carried out by the end of March 2018 to allow Transpower time to incorporate changes into its preparations for its expenditure proposal for the 2020-2025 IPP.[298]

8.37 In August 2019 we made changes to the IMs applying to Transpower which were relevant to the setting of the IPP for the regulatory period commencing on 1 April 2020.[299]

8.38 In November 2019 we published our final decision on how we addressed issues raised in relation to the EDB and the IMs applying to Transpower by a new financial reporting standard - New Zealand Equivalent to International Financial Reporting Standard 16 Leases (**NZ IFRS 16**). We made changes to the IMs applying to Transpower.[300]

Is there other experience that could help deal with these issues?

8.39 We invite your submission on other regulatory mechanisms (ie, other than those applying under the IMs) that you have seen applied in response to the issues identified in this chapter which, if implemented, might better meet the overarching objectives of the IM Review framework either on their own or in conjunction with the current IMs. For example, in Transpower's response to our open letter:[301]

> We believe the Commission's approach to accepting and assessing stage projects would benefit from clarification. Additional guidance, like the AER [Australian Energy Regulator] has provided for Australian transmission network service providers would assist both us and the Commission to benefit from the staging mechanisms…
>
> We note the Ofgem [Office of Gas and Electricity Markets in Great Britain] February 2021 final determinations for network allowances under the RIIO-2 price control which sets out "*outputs and incentives to further reduce the harmful impact that the transmission network and related business activities can have on the environment*". We consider this is an area that the Commission should consider as part of the IMs review. We consider that incentivising us to minimise our emissions is consistent with Part 4 and the long-term benefits of consumers.[302]

What further information is needed to advance our thinking?

8.40 We seek your views on the extent to which:

8.40.1 the IMs that apply to Transpower's transmission investment provide Transpower with sufficient flexibility to deal with uncertainty; and

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[298] Commerce Commission "Transpower capex input methodology review" (29 March 2018).

[299] Commerce Commission "Amendments to input methodologies for Transpower New Zealand Limited - Reasons paper" (28 August 2019).

[300] Commerce Commission "Treatment of operating leases – Final decisions paper" (13 November 2019).

[301] Transpower "Response to open letter - Fit for purpose regulation" (28 May 2021).

[302] Ofgem "Decision on the proposed modifications to the RIIO-2 Transmission, Gas Distribution and Electricity System Operator Licences" (3 February 2021).

8.40.2 the IMs that apply to Transpower will cope with the impact of potential rapid changes to electricity transmission as a result of decarbonisation.

8.41 We encourage you to use our draft IM review framework to support your submission, particularly to show how addressing and resolving the issues you identify would promote one or more of the three overarching objectives for the IM Review.

Chapter 9 Effectiveness of the IMs for each sector

Purpose of this chapter

9.1 In this chapter we will explain our approach to assessing the effectiveness of all IMs to the extent they are not covered by other topic areas.

Structure of this chapter

9.2 The structure of this chapter is:

9.2.1 What is the topic area?

9.2.2 What issues have been raised on this topic area?

9.2.3 Have we previously looked at this topic or these issues?

9.2.4 What further information is needed to advance our thinking?

What is the topic area?

9.3 In this topic area we will broadly assess the effectiveness of all IMs to the extent they are not covered by other topic areas. We will only make IM changes that will promote one or more of the overarching objectives as outlined in the draft IM review framework paper.

9.4 The scope of this topic area covers two types of IM changes that we consider have the potential to make the IMs more effective in achieving the overarching objectives:

9.4.1 potential refinements to the drafting of the IMs (that do not relate to changes to the underlying policy); and

9.4.2 policy amendments related to matters that are not reviewed in other topic areas.

9.5 We are open to submissions on any policy issues that are not covered by the other topic areas set out in this paper.[303]

Opportunities for improvement

9.6 We expect potential drafting refinements to improve the IMs by addressing readability and workability, and policy amendments to present opportunities to improve the IMs by addressing flexibility and workability. With this in mind, we will consider opportunities for improvement in the following ways:

[303] If we identify a major policy matter that is not reviewed in one of the other topic areas, we may choose to create an additional topic area to review the matter.

9.6.1 We will consider opportunities to improve the readability of IMs where we identify that they are ambiguous, contain errors, or would otherwise benefit from amendments to make the drafting clearer and more consistent with the original policy intent.

9.6.2 We will consider how we could use a flexible or principles-based approach to drafting IMs, where appropriate, to reduce complexity in the IMs in line with the overarching objectives. As discussed in the framework paper, at times there will be a tension between making amendments to better promote the section 52A purpose and providing certainty. Ultimately, we must make decisions that we consider promote the purpose of Part 4 under section 52A.[304]

9.6.3 We will consider opportunities to improve the workability of IMs by reducing complexity in how they implement their underlying policy while preserving its intent or outcomes.[305] In considering such amendments, we will have regard to the positive and negative impacts of any changes.

What issues have been raised on this topic area?

9.7 Submissions in response to our April 2021 open letter and December 2021 workshop did not raise issues that fall within this topic area.[306] We recognise, however, that this may be because the open letter was framed around four specific high-level policy outcomes and the workshop focused on decarbonisation.

9.8 Since the 2016 IM review we have recorded issues that potentially could be addressed by the IM Review. Examples include:

9.8.1 ambiguity in the definition of opex in the GPB and airport services IMs, in terms of whether it includes court-imposed pecuniary penalties;

9.8.2 whether Transpower's greater involvement (or potential involvement) in contestable activities since we originally set Transpower's IMs suggests any changes are necessary to our cost allocation approach for Transpower; and

[304] Commerce Commission "2023 input methodologies review" webpage, scroll down to "Draft framework paper" (20 May 2022), p. 2.27-2.28.

[305] For example, the current EDB IM determination specifies standard physical asset lives for individual assets, but specifying the same for asset categories where asset lives within categories are similar may reduce complexity while achieving the same outcome.

[306] Commerce Commission "Summary and feedback on workshop on the impact of decarbonisation on electricity lines services" (1 February 2022); Commerce Commission "Open letter – ensuring our energy and airports regulation is fit for purpose" (29 April 2021).

9.8.3 whether the related party transaction rules facilitate innovative delivery of electricity to support decarbonisation while addressing possible cost cross-subsidisation issues, eg, in the provision of electric vehicle charging services by unregulated related parties of regulated EDBs.

9.9 In addition, issues related to reopener mechanisms have emerged, including:

9.9.1 ambiguity in the evidential requirements for certain trigger events;

9.9.2 uncertainty about reconsiderations and the framework we apply when assessing whether to amend a price-quality determination;

9.9.3 ambiguity about whether we must amend the price path or quality standards (or both) after a decision that the price-quality determination should be amended; and

9.9.4 ambiguity (or errors) in constraints on us amending price-quality determinations following a reopener decision to amend.

Have we previously looked at this topic or these issues?

9.10 Drafting refinements and policy amendments related to matters that were not reviewed in other topic areas were not specifically included in a 2016 IM review topic area, however, we referred to them where we considered they might indicate unwarranted complexity or compliance costs.[307] We also invited submissions on how we could include consideration of drafting errors and ambiguity into the decision-making framework that we agreed to develop.

[307] In the 2016 IM Review, drafting refinements and policy amendments related to matters that were not reviewed in other topic areas were framed as "ambiguity, drafting errors and unintended consequences"; Commerce Commission "Invitation to contribute to problem definition" (16 June 2015), p. 68.

9.11 As part of the CPP fast-track amendments we made in 2015, we decided to allow alternative methodologies with equivalent effect (**AMWEEs**) to be available to EDBs and GPBs for certain elements of CPP proposals, provided the alternative methodologies produced an equivalent effect to the existing methodology set out in the IMs.[308] In the 2016 IM review we made AMWEEs available to airports as well where the application of the asset valuation IMs would prove prohibitively complex or costly.[309] In our 2021 amendments to the Fibre IMs, we provided for alternative methodologies with equivalent effect *or substantially the same effect* to be used in determining the 'financial loss asset' in accordance with s 177(2) of the Telecommunications Act 2001.[310]

9.12 If certain IMs are unable to be implemented or applied, allowing an alternative methodology that still achieves the underlying policy intent of the IM to be used may better promote one or more of the overarching objectives of the IM Review. Given this, we may consider allowing alternative methodologies to be used in certain circumstances, provided they produce an equivalent effect or substantially the same effect as the existing Part 4 IMs. In reviewing this, we will consider the relevance of the application to Part 4 of the approach we provided for under the Fibre IMs and assess whether allowing alternative methodologies to be used in further certain circumstances under Part 4 would better promote one or more of the overarching objectives of the IM Review.

What further information is needed to advance our thinking?

9.13 We invite you to make submissions on specific issues you consider may fall within this topic area. Submissions might relate to:

9.13.1 IMs that are ambiguous, contain errors or are otherwise drafted in such ways that mean they would benefit from amendments;

9.13.2 specific instances in which you consider that providing guidance, rather than making an amendment, would be a better approach for us to improving readability, and reasons why;[311]

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[308] Commerce Commission "Input methodologies review: Amendments to input methodologies for customised price-quality paths – Final reasons paper for limb 1 of the CPP fast track" (12 November 2015); Commerce Commission "Input methodologies review decisions: Topic paper 2: CPP requirements" (20 December 2016).

[309] Commerce Commission "Input methodologies review decisions – Topic paper 5: Airports profitability assessment" (20 December 2016), Table X1.

[310] Commerce Commission "Fibre Input Methodologies main 2021 amendments: final decisions – final reasons paper" (29 November 2021), p. 1.12.1.2. For more information on the financial loss asset, see Commerce Commission "Fibre input methodologies: Financial loss asset final decision – reasons paper" (3 November 2020), p. 2.3 - 2.13.

[311] While we note that guidance is not within the scope of IM Review 2023 (prescribed by section 52Y(1) of the Act), in the past we have provided guidance outside of the IM determinations themselves (eg, by including brief guidance notes in IM determinations, publishing separate guidance papers, and running workshop training sessions) and are nonetheless interested in the perceived merits of that approach relative to making amendments.

9.13.3 IMs that could be less complex if drafted using a flexible or principles-based approach;

9.13.4 IMs that could be more workable, while still achieving their regulatory intent or outcomes, if their underlying policy were less complex; or

9.13.5 policy matters that are not covered by the other topic areas set out in this paper.

9.14 Where possible, we ask that your submission identifies the issue in terms of the text, clause or structure of the IM determination and the specific problem that flows from that issue.

9.15 We also invite you to:

9.15.1 suggest an approach we could take to resolving the issue (eg, IM amendments or other appropriate regulatory changes);[312]

9.15.2 offer a high-level view of how the suggested approach aligns with promoting one or more of the overarching objectives of the IM Review; and

9.15.3 describe any practical application matters related to the suggested approach (eg, the timing of any changes relative to price-quality resets).

[312] Solutions that you propose might also involve changes to the price-quality path determinations or the ID determinations. While some of these will be outside of the scope of the IM Review, as they might not relate to the IMs only, we may decide to consider them as separate amendments to ID requirements or in our future resets of the relevant price-quality paths.

Attachment A: Outcomes in the market for electricity lines services

10.1 This attachment provides an overview of the following performance areas and outcomes in the market for electricity lines services, which have a direct read-across to the purpose of Part 4:

- Investment
- Innovation[313]
- Efficiency
- Revenues and prices
- Quality
- Profits

10.2 We begin our overview with the outcomes that consumers experience most directly – prices and quality. We then describe the main drivers for the observed outcomes, which involves looking at expenditure (including investment), efficiency and innovation. We conclude the overview presenting evidence related to profitability.

10.3 Most of the content in this attachment relates to EDBs and comes from our 2020 "Trends in local lines company performance" publication, except those relating to efficiency and innovation.[314] We make it clear when content relates to Transpower.

10.4 In relation to efficiency and innovation, we note that we cannot reach a definitive view on how suppliers have performed on the basis of the available evidence, and so we raise questions and hypotheses to investigate further.

10.5 We recognise that the evidence before us is limited and imperfect. We welcome evidence from stakeholders that can help us better understand the market outcomes and suppliers' performance. This can help us assess the effectiveness of existing incentives, the scope for improvement, and potential issues to focus on in the IM Review. A robust evidence base helps us make more informed decisions in relation to any potential IM changes.

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[313] Our IMs define innovation projects as a project that is focussed on the creation, development or application of a new or improved technology, process or approach in respect of the provision of electricity lines services in New Zealand. This definition is largely consistent with the definition of innovation in the Oslo Manual.

[314] Commerce Commission "Trends in local lines company performance" (17 December 2020).

Key findings

10.6 Electricity distribution businesses have invested over the past ten years to meet growing demand. However, on average, electricity distribution revenues and prices have grown faster than inflation since 2008.[315] This increase in revenue has also been higher than the main drivers of network growth (ie, growth in customers, energy and power supplied).[316]

10.7 The quality of service we currently measure (reliability) delivered to consumers of electricity has seen little change.[317] The average number of unplanned outages per customer has remained similar, with the latest year of data showing a decrease in the duration of outages. However, planned outages have increased, and these have tended to last longer than they used to. This is consistent with both greater maintenance and investment, and changes to health and safety practices, such as less live line work.

10.8 Expenditure (including Transpower investment) has increased, nearly doubling in nominal terms since 2008. This is the main driver of the growing revenues and consumer prices.

10.9 This trend of increasing expenditure has coincided with a declining trend in the WACC. As a result, increasing levels of ELB expenditure have been partially offset by a falling WACC (driven by a falling risk-free rate). This meant that allowed revenues did not grow as fast as expenditure did over this period.

10.10 We have not recently undertaken detailed analysis of the efficiency performance of ELBs. However, based on evidence presented to us by stakeholders, there are indications that, overall, EDBs' opex productivity has steadily declined over the 2002-2018 period. Wider evidence suggests that this cannot necessarily be attributed to common drivers affecting comparable sectors in New Zealand, or the same sectors in relevant overseas markets. Transpower's overall productivity was broadly stable over the 2011-2018 period, while capex and opex productivity appeared to compare favourably and less favourably, respectively, against Australian comparators.

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[315] In this attachment, we use 'price' to refer to revenue per customer.

[316] See footnote 320 for how to interpret the relationship between price and network outputs such as energy supplied.

[317] This refers to reliability, as measured by overall network SAIDI and SAIFI.

10.11 The evidence before us suggests that innovation activity occurs, but it has not yet clearly resulted in improved consumer outcomes in the form of higher productivity or measured service quality improvements.[318] It may be that the level and/or nature of innovation that has occurred has not contributed to improving dynamic efficiency. Alternatively, it may be that investment has detracted from dynamic efficiency more than innovation has promoted it (ie, investment has on the whole been inefficient). Finally, it may be that the evidence we have on productivity as well as the range and quality of service cannot be given too much weight (eg, the measured quality of service misses important dimensions that consumers value or other EDB outputs), and therefore we cannot confidently take a view on the efficiency or innovation performance of EDBs.

10.12 Profitability across EDBs has been below estimates of reasonable returns. Our estimate for the WACC was 7.8% for 2011-2015 and 6.4% for 2016-2020.[319] The industry returns tended to be lower than these levels, suggesting that local lines companies were not making excess returns. This may be consistent with weak or negative productivity growth, but also with voluntary undercharging.

Analysis

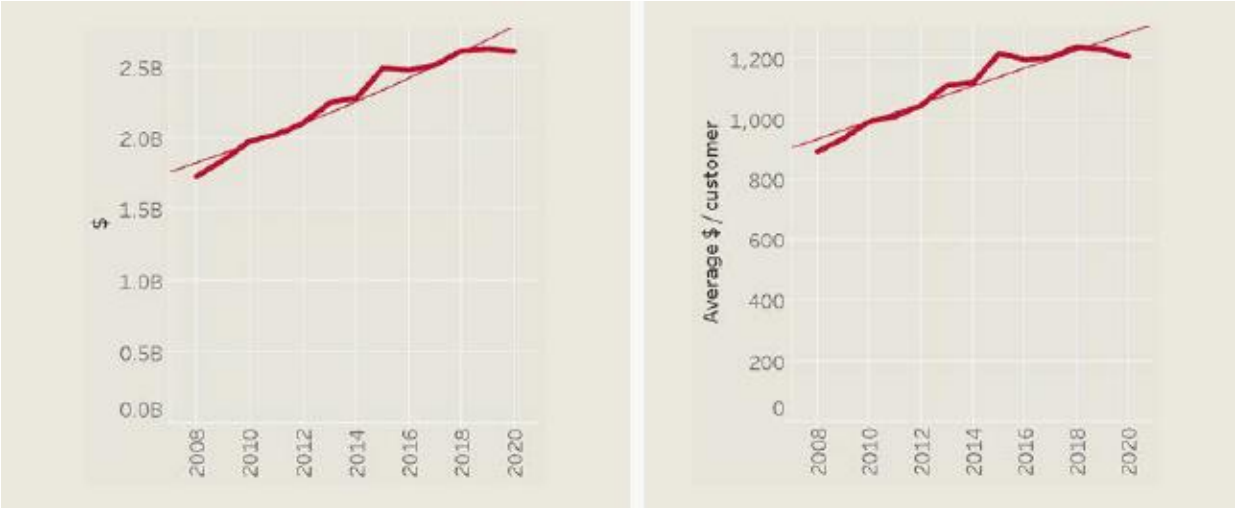
On average, electricity distribution revenues and prices have grown faster than inflation…

10.13 In aggregate, local lines companies' annual revenue grew by 53% in nominal terms between 2008 and 2020. On a per-customer basis, it increased by 38% over the same period, or $350.

[318] The current measures may be missing EDB outputs such as connecting/integrating more distributed energy resources, or other important aspects such as more safety for the public and EDB staff.

[319] These are post-tax nominal WACC estimates unadjusted for changes in CPI. For 2010 to 2015 we used the 75th percentile of our estimate, while for 2016 to 2020 we used the 67th percentile. The appropriate benchmark to compare achieved post-tax returns against is the post-tax nominal WACC adjusted for differences between expected and actual CPI. The adjusted and unadjusted benchmark WACCs for the relevant periods are similar enough, such that the conclusion that profitability tended to be lower than these levels holds.

Figure 10.1 Total and per-customer nominal revenue for all local lines companies, 2008-2020

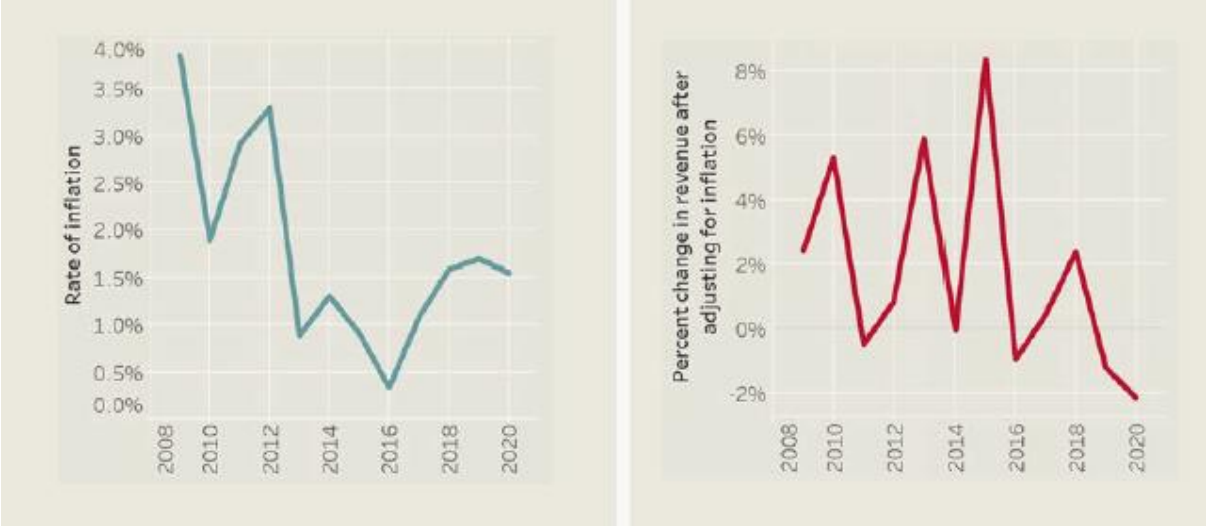


Source: Commerce Commission, Trends in local lines company performance, 2020.

10.14 After adjusting for inflation, aggregate annual revenue increased by 27% between 2008 and 2020. On a per-customer basis, it increased by 15% or $165.

10.15 The revenue recovered from consumers has increased nearly twice as fast as inflation, as the figure below shows.

Figure 10.2 Annual rate of inflation (left) and change in inflation-adjusted revenue (right)



Source: Commerce Commission, Trends in local lines company performance, 2020.

10.16 The number of customers connected to a local lines company, and the energy and power supplied to those customers have all grown over the same period – by 10%, 10% and 8% respectively. However, revenue has increased faster than each of these drivers of network growth. [320]

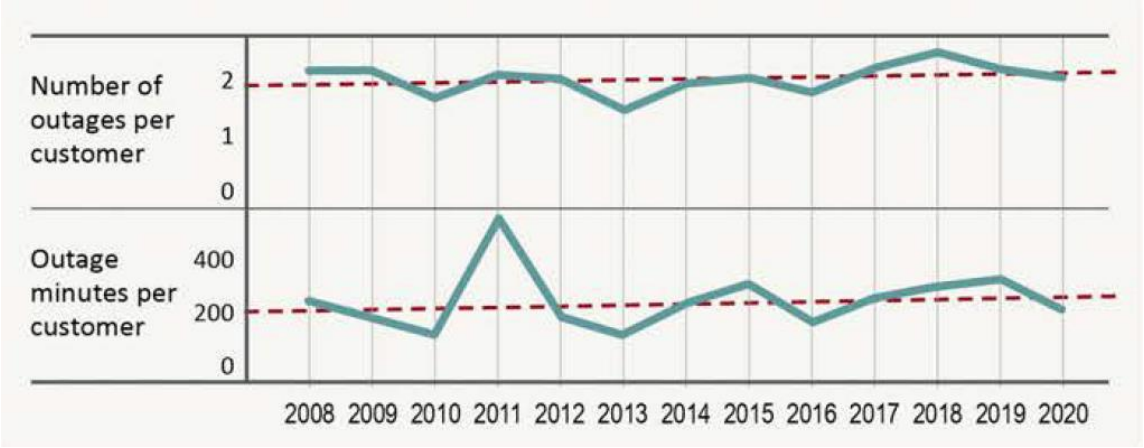
10.17 The increase in revenue was greatest from 2008 to 2015, and has since slowed for a variety of reasons, including lower inflation and lower finance costs.

10.18 In brief, consumers have on average experienced an increase in price since 2008. This increase in price has been significantly higher than inflation.

… while the quality of service (reliability) experienced by consumers has seen little change

10.19 The average number of outages that consumers experienced has remained similar over the analysis period—while there are more outages in total, they tend to be smaller in scope, each one affecting fewer customers. We also found that, on average, outages tended to last slightly longer than they used to.

Figure 10.3 Frequency and duration of outages per customer, 2008-2020



Source: Commerce Commission, Trends in local lines company performance, 2020.

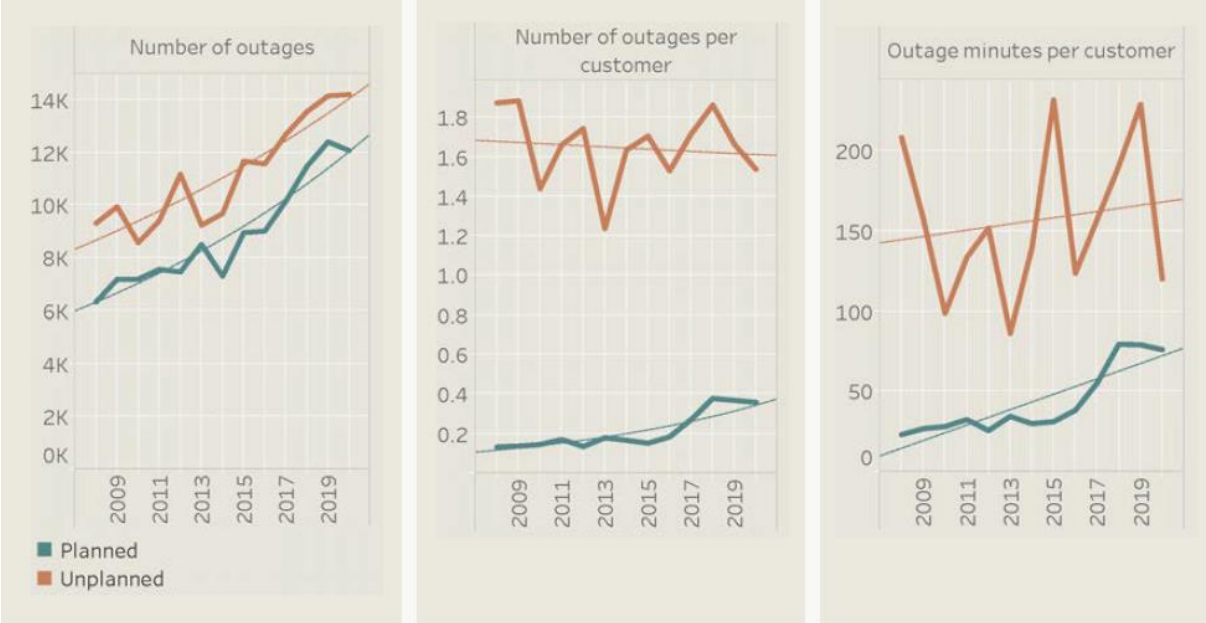
10.20 Figure 10.4 below shows the breakdown between planned and unplanned outages. There have been materially more outages from EDBs – both planned and unplanned.

10.21 The average customer experienced more planned outages but slightly fewer unplanned ones – combined, they experienced slightly more outages overall.

[320] It would not be appropriate to reach conclusions based on comparing revenue growth with growth in each network output independently. These, and any other relevant outputs and inputs would need to be considered together, in a more sophisticated productivity analysis (eg, the productivity studies covered in paragraph 10.41 onwards).

10.22 Outages have tended to last longer than they used to, although the latest year of data (year ending 31 March 2021, not shown in chart) shows a decrease in the duration of outages.

Figure 10.4 Planned and unplanned outages, 2008-2020



Source: Commerce Commission, Trends in local lines company performance, 2020.

10.23 Combined, these observations suggest that while there are more outages in total, they tend to be smaller in scope, each one affecting fewer customers. They are also more likely to be planned.

10.24 A greater number of longer lasting planned outages is consistent with both greater maintenance and investment and changes to health and safety practices, such as less live line work.

10.25 In summary, the quality of service—based on existing reliability measures—delivered to consumers of electricity has seen little change. The average consumer experienced slightly more and longer lasting outages. However, the number and duration of unplanned outages tended to be broadly stable, with the growth coming from planned outages.

Expenditure (including Transpower investment) has increased, which is the main driver of the growing consumer prices

10.26 Expenditure by local lines companies has nearly doubled between 2008 and 2020 in nominal terms.

10.27 The largest component of expenditure over the period has been local lines companies' own costs, which have increased at an average annual rate of 4.5% in nominal terms. These costs have risen by 72%, or $480m since 2008.

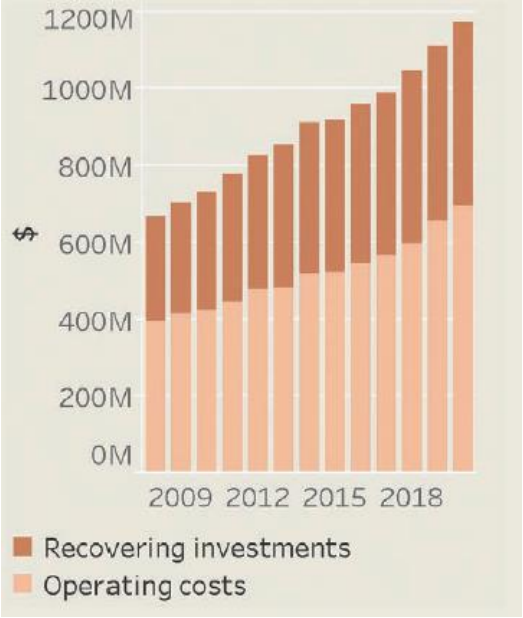
10.28 Transmission and other pass-through costs have been the fastest growing component, trending up at an annual rate of 5.3%, or by $425m.

Figure 10.5 Breakdown of revenue (left) and change in components (right), 2008-2020

Source: Commerce Commission, Trends in local performance, 2020.

10.29 Breaking down local lines companies' own costs into operating expenditure and recovering past investments (ie, depreciation) shows that both categories have increased at an accelerating pace, as the figure below shows.

Figure 10.6 Aggregate network costs by sub-component, 2008-2020



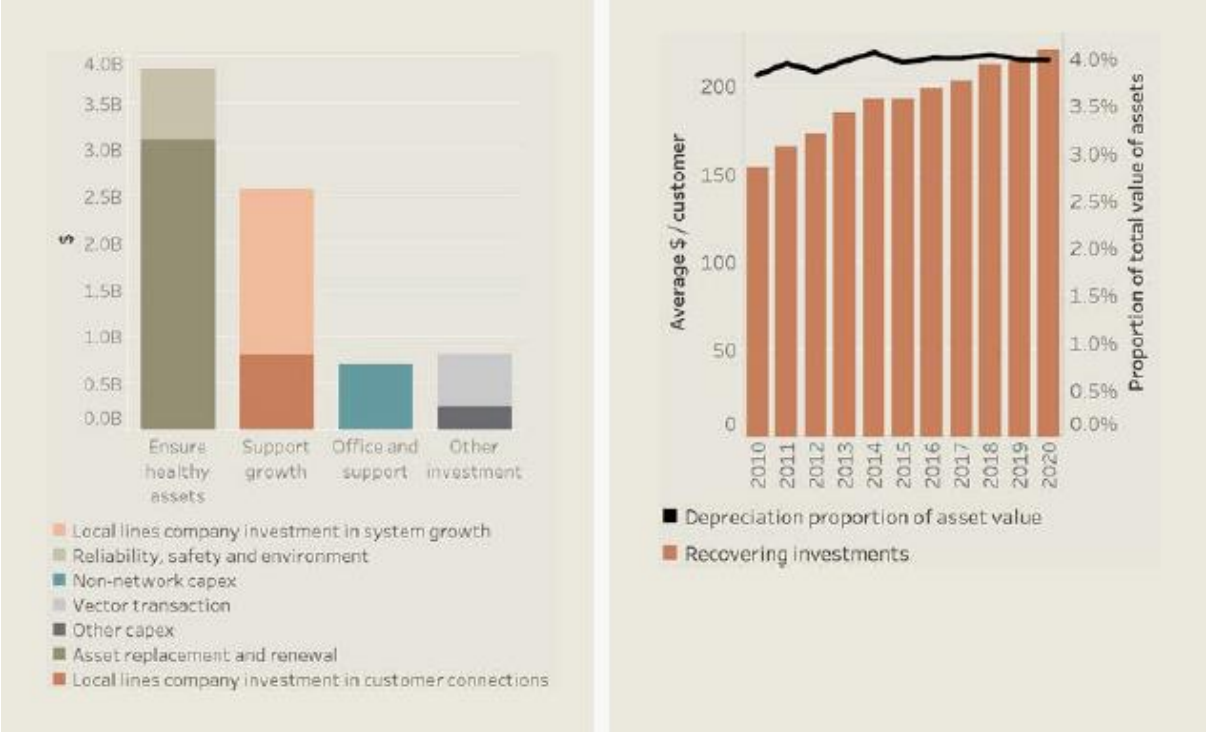
Source: Commerce Commission, Trends in local lines company performance, 2020.

10.30 Furthermore, local lines companies' capital expenditure has also increased, bringing the total value of their regulated asset bases to $13bn in 2020, up from $7bn in 2008. This increase reflects $9.3bn of new commissioned assets and $2.2bn of revaluations, partially offset by $4.9bn of depreciation.[321] Most of this expenditure has been in reliability and asset replacement and renewal, followed by growth capex.

10.31 The rapidly growing regulated asset bases has caused depreciation to grow faster than the number of customers. As a result, each customer pays around $63 more per year in nominal terms than they did a decade ago for local lines companies to recover investment costs (note that this relates exclusively to the return *of* investment; it excludes the return *on* investment).

[321] Plus smaller changes for asset disposals, lost and found assets and reallocated assets.

Figure 10.7 Local lines companies' investment and depreciation, 2010-2020



Source: Commerce Commission, Trends in local lines company performance, 2020.

10.32 In relation to electricity transmission costs, these have increased from $415m in 2008 to over $700m in 2020. They are mainly driven by Transpower investment in major capital projects.

10.33 In total, between 2008 and 2020, the value of Transpower's regulated asset base has more than doubled—increasing by around $2.5bn in nominal terms.

10.34 This increased investment effectively reversed Transpower's 'glide path' strategy in the late 90s and early 2000s, which minimised spending on the grid and renewing assets, on the premise that distributed generation would increase, thus reducing the need to expand and maintain the grid. This strategy became unsustainable and Transpower embarked on a significant investment programme.[322]

10.35 In brief, expenditure and investment have followed an increasing trend over this period, and their levels now are substantially higher than when Part 4 was introduced. This is the main driver for increasing revenues and prices.

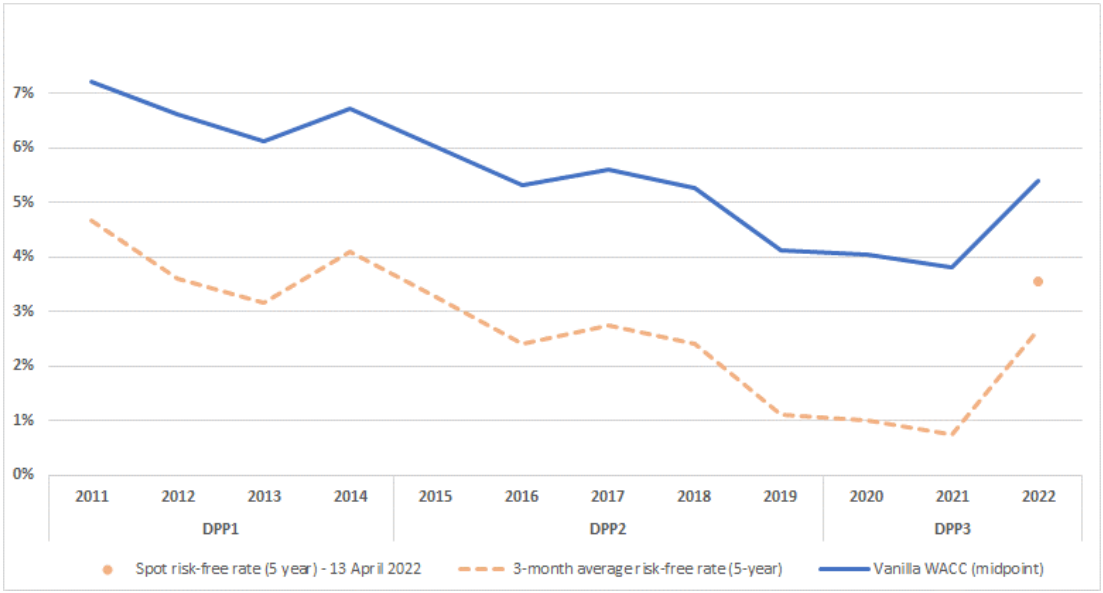
[322] Auditor-General New Zealand "Auditor-General's overview - Transpower New Zealand Limited: Managing risks to transmission assets" (28 September 2011)

Rising expenditure has been partially offset by a falling WACC

10.36 This trend of increasing costs has coincided with a declining trend in the WACC. As a result, the upward effect on revenue of increasing levels of expenditure has been partially offset by a falling WACC (driven by a falling risk-free rate). We say 'partially' because the upward effect on revenue of growing RABs has dominated the downward effect on revenue of a falling WACC. This meant that allowed revenues did not grow as fast as costs did over this period.

10.37 However, risk-free rates appear to have bottomed out in late 2020 and have started increasing sharply, and so the WACC has also started to increase. As a result, the WACC appears likely to become a key driver of allowed revenue increases in the future, effectively reversing the role it had played over the previous decade.

Figure 10.8 WACC and risk-free rate over time



Source: Commerce Commission analysis based on data from Bloomberg and Interest.co.nz
Note: the WACC values displayed are the mid-point 'ID WACC' except for 2014 and 2019, where we used the mid-point 'PQ WACC' calculated for the DPP resets (we used the 67th percentile for determining allowed revenues).

Productivity (opex) of electricity distribution businesses appears to have declined, while Transpower's overall productivity has been broadly stable

10.38 This section focuses on productivity rather than efficiency.[323] It presents evidence showing a decline in productivity and raises the question of what this means for productive efficiency. Further, this section implicitly relates to dynamic efficiency to the extent that investment and innovation affects productivity (as well as range and quality of service over time).[324] It does not cover allocative efficiency, which is more related to efficient pricing structures (within the Electricity Authority's (EA) remit), and given that we know very little about the quality that consumers demand.

10.39 To recap, efficiency encompasses three components: technical (or productive) efficiency, allocative efficiency, and dynamic efficiency:

10.39.1 Productive efficiency is present when producers use inputs in such a manner as to minimise costs, subject to technological constraints.

10.39.2 Allocative efficiency occurs when resources are allocated within the economy to the uses in which they have the highest value. This takes into account consumers' preferences, such as quality of service.

10.39.3 Dynamic efficiency refers to decisions made over time and includes decisions relating to investment and/or innovation that can improve productivity as well as the range and quality of services.

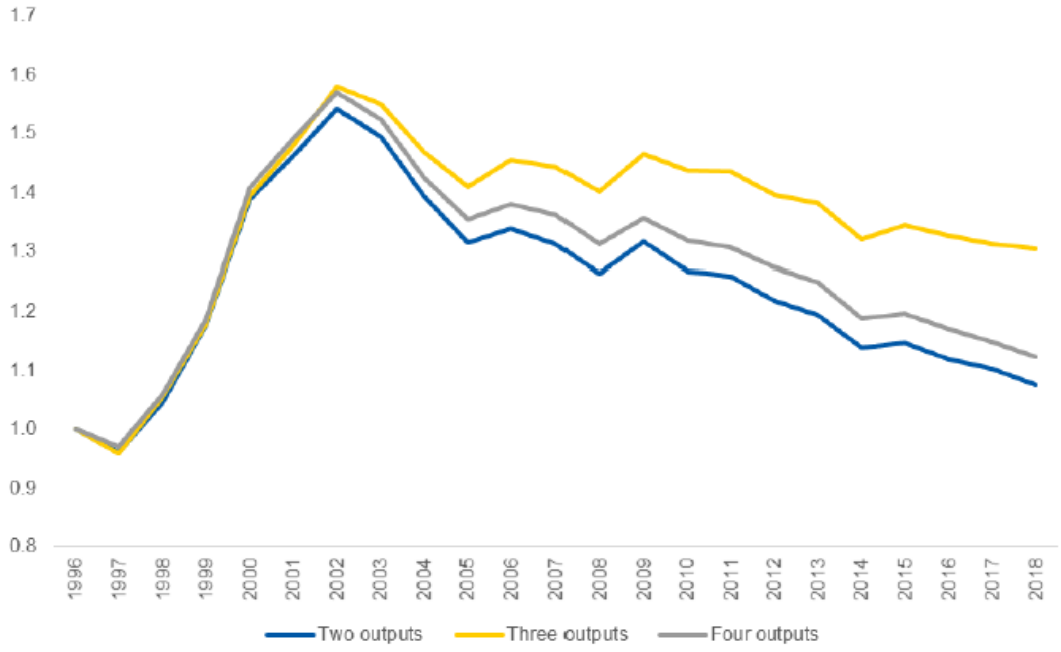
10.40 We have not recently undertaken detailed analysis of the efficiency performance of ELBs ourselves. However, there are indications that overall, EDBs' opex productivity has declined over the 2002-2018 period. Transpower's overall productivity was broadly stable from 2011 to 2018, while Transpower's capex and opex productivity appeared to compare favourably and less favourably respectively, against Australian comparators.

[323] Productivity is defined as the ratio of a volume or monetary measure of outputs (ie goods, services or prices) to a volume or monetary measure of the inputs used in their production. Growth in productivity means that an industry for example can produce more output from the same amount of input, or the same level of output from fewer inputs. Note that a fall in productivity does not necessarily mean worse productive efficiency, since falling productivity could be driven by factors outside the firm's or management control.

[324] Innovation has its own section later in this chapter.

10.41 In our 2019 DPP reset for EDBs, the ENA produced evidence of opex productivity.[325] The below figure shows a declining opex productivity trend for EDBs since 2002.[326] These findings are consistent in terms of the direction and magnitude of productivity change with earlier work that we commissioned during the 2014 DPP reset.[327]

Figure 10.9 Electricity distribution opex productivity indices, 1996-2018



Source: NERA analysis, EI 2014, NZCC information disclosures.

10.42 As part of our 2018 IPP reset for Transpower, the independent verifier produced evidence on Transpower's productivity performance.[328] The below figure summarises their findings, which show that total productivity remained broadly stable from 2011 to 2018.

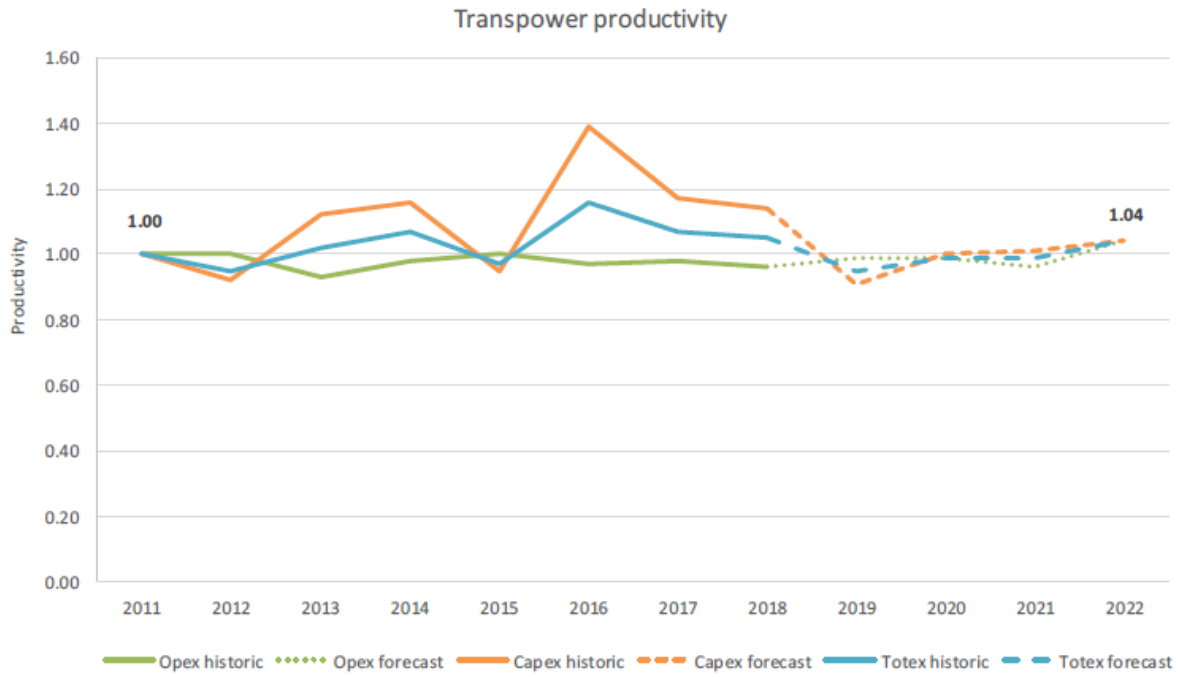
[325] NERA "Opex Partial Factor Productivity for DPP3 - Electricity Network Association" (18 July 2019).

[326] NERA note that the sharp rise in productivity between 1996 and 2002 is likely driven by the corporatisation (and in some cases privatisation) of ELBs that occurred in the early 1990s.

[327] Economic Insights "Electricity Distribution Industry Productivity Analysis: 1996-2014 - Report prepared for Commerce Commission" (30 October 2014).

[328] Synergies Economic Consulting "Independent Verification Report - Transpower's RCP3 Expenditure Proposal 2020-2025" (12 October 2018), page 76.

Figure 10.10 Transpower productivity trend 2011-2022

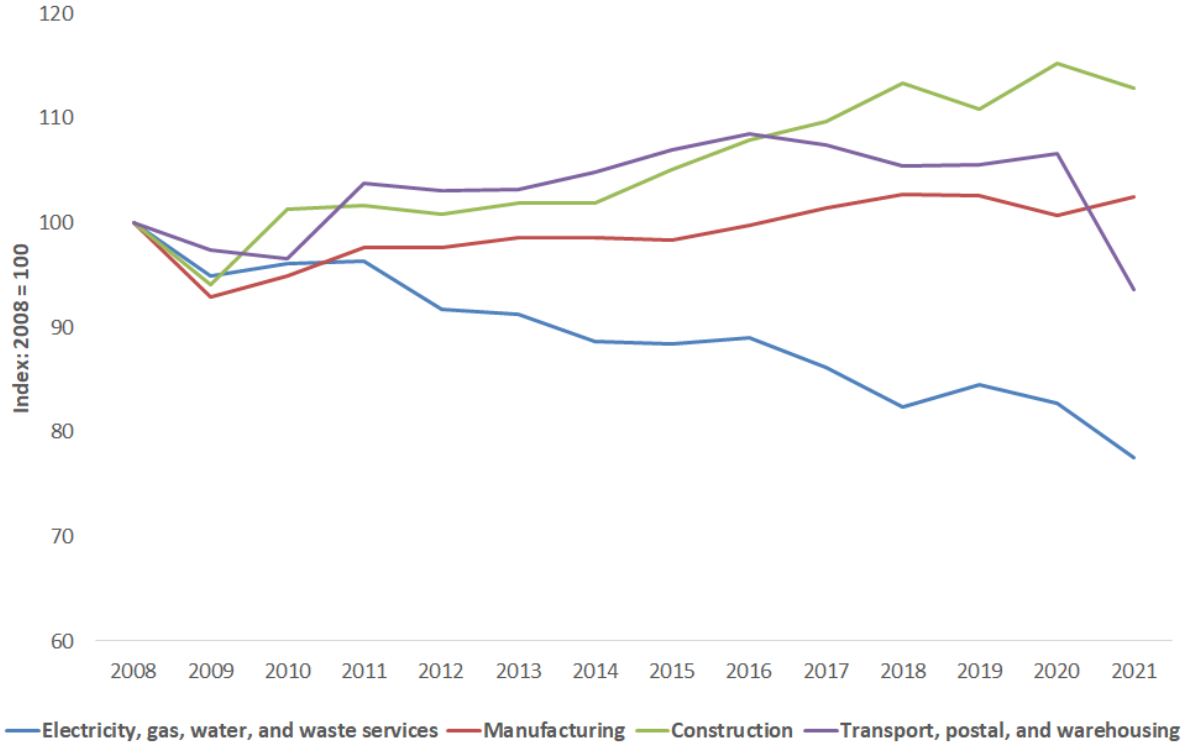


Source: Synergies, Independent Verification Report – Transpower's RCP3 Expenditure Proposal (2020-2025).

10.43 Another indication that productivity may have worsened comes from Stats NZ, although it is less specific to ELBs. Their estimates include the whole electricity supply chain (not just lines companies), which is aggregated with gas, water, and waste services. Figure 10.11 shows that multifactor productivity for the electricity, gas, water, and waste services industries has declined over time.[329] It is now over 20% lower than it was in 2008.

[329] Multifactor productivity relates a change in output to several types of inputs. It is often measured residually, as that change in output that cannot be accounted for by the change in combined inputs.

Figure 10.11 Multifactor productivity index, selected industries, 2008-2021



Source: Stats NZ, Productivity statistics: 1978-2021, Table 4.05, Multifactor productivity index, by industry.

10.44 Furthermore, the productivity performance has diverged relative to other broadly comparable sectors (also shown in the figure). We would expect competitive pressures to encourage efficiency improvements in some of these sectors (like with electricity generation and retailing). This is broadly what we see in the data.[330]

10.45 The manufacturing, construction and transport, postal and warehousing sectors are likely comparable—to some extent—to ELBs. In our DPP 3 reset we considered that:[331]

> the manufacturing, construction and services sectors to be comparable to distributors because these sectors have similar inputs, operate and maintain a network or involve large scale equipment. These sectors align with several independent economic consultancies' views of comparable sectors to the water sector which is also a network utility. Therefore, there are likely to be opportunities for distributors to adopt practices from these sectors to improve their productivity during DPP3.

[330] We note that 2021 may be an outlier due to the severe shock to the economy from the COVID-19 pandemic. Interestingly, we observe that all sectors dropped in 2021 except manufacturing, which is consistent with people in lockdown demanding more goods and less services.

[331] Commerce Commission "Default price-quality paths for electricity distribution businesses from 1 April 2020 - Final decision" (27 November 2019), p. A157.

10.46 Another, perhaps less relevant recent indicator related to the efficiency of infrastructure delivery in New Zealand comes from a recent study of the Infrastructure Commission.[332] Its study includes many forms of infrastructure, including electricity. One of its main findings is that New Zealand is among the least efficient high-income countries at delivering infrastructure.

10.47 Some electricity consumers have also highlighted the need to better understand the efficiency performance of ELBs:[333]

> The efficiency of EDB and Transpower we understand has been going backwards. To gain further insight on the scale of the lack of improvement in productivity problem the Commission should consider long-term efficiency gains in New Zealand compared to line monopolies overseas. We know benchmarking is difficult but the lack of efficiency improvements in one of the most important sectors in the economy requires better information to know how large the problem is to support resources needed and innovative regulatory approaches to be tested, and to measure if those are successful.

10.48 In contrast, there is evidence of positive productivity in electricity lines services in comparable markets overseas. A recent study analysed the productivity growth of electricity transmission and distribution networks in Great Britain, and how changes in incentive mechanisms have influenced the measured total factor productivity. It controlled for service quality and environmental targets. It found low—but positive—productivity growth of about 1% per annum over the 29 years from 1990/1991 to 2018/2019.[334]

10.49 Closer to home, the Australian Energy Regulator (AER) annually reports on the productivity of electricity distribution and transmission networks. Its most recent economic benchmarking reports show that the productivity of both electricity distribution and transmission networks have been increasing since 2015 and 2016 respectively.[335] This is consistent with the observed reductions in operating and capital expenditure, and reductions in network outages (which is opposite to what we have observed in New Zealand).

10.50 The below figures show that the growth in productivity of Australian electricity lines services since 2015/16 exceeded that of the overall economy and the utility sector (electricity, gas, water and waste services), although the level of productivity of electricity lines services is lower.

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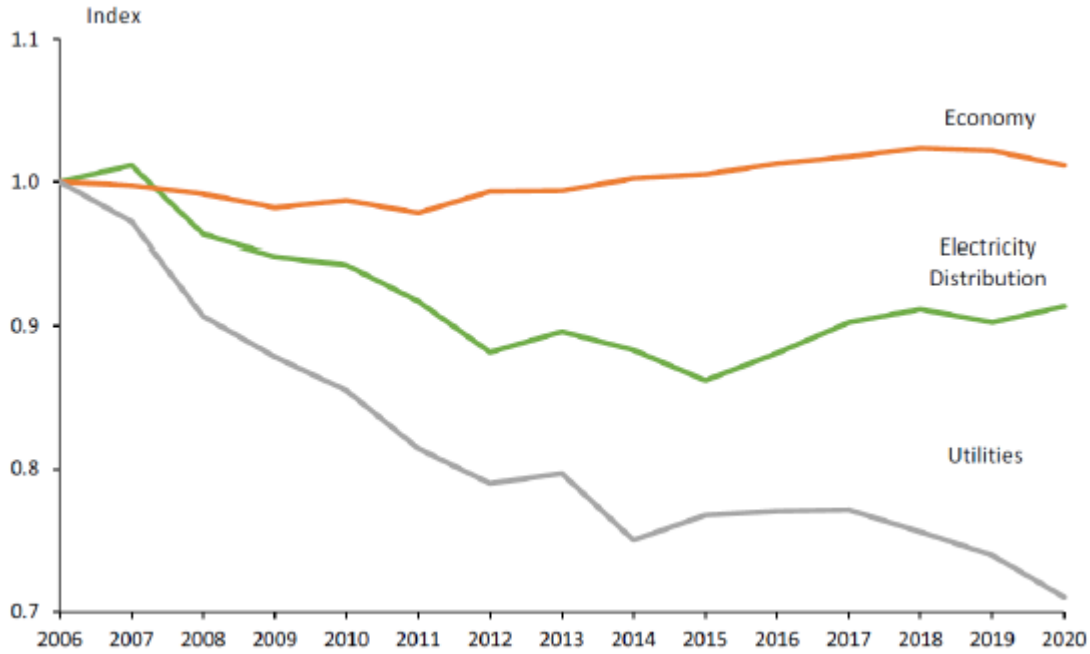
[332] New Zealand Infrastructure Commission (Te Waihanga) "Investment gas or efficiency gap? Benchmarking New Zealand's investment in infrastructure - Te Waihanga Research Insights series" (December 2021).

[333] Major Electricity Users' Group "Submission - Levy consultations 2020" (05 February 2021), page 2.

[334] Victor Ajayi, Karim Anaya, Michael Pollit "Incentive regulation, productivity growth and environmental effects: the case of electricity networks in Great Britain - Energy Policy Research Group, University of Cambridge (2021), EPRG Working Paper 2126, Cambridge Working Paper in Economics 2181.

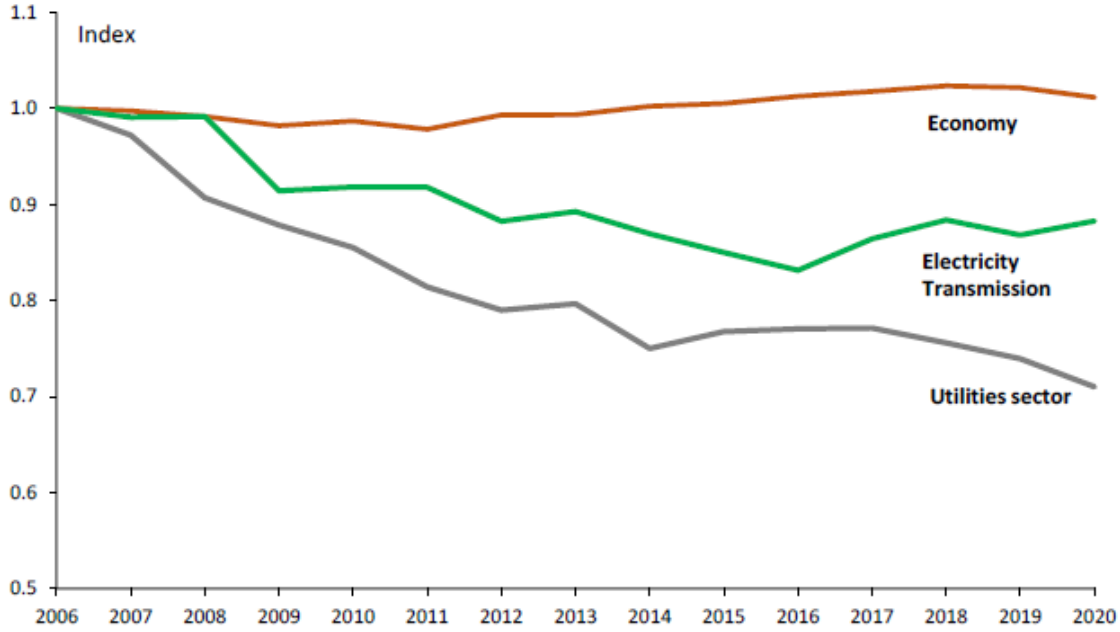
[335] AER "Annual Benchmarking Report: Electricity distribution network service providers" (November 2021); AER "Annual Benchmarking Report: Electricity transmission network service providers" (November 2021).

Figure 10.12 Australian electricity distribution, utility sector, and economy productivity, 2006-2020



Source: AER 2021 distribution network service provider benchmarking report.

Figure 10.13 Australian electricity Transmission, utility sector, and economy productivity, 2006-2020

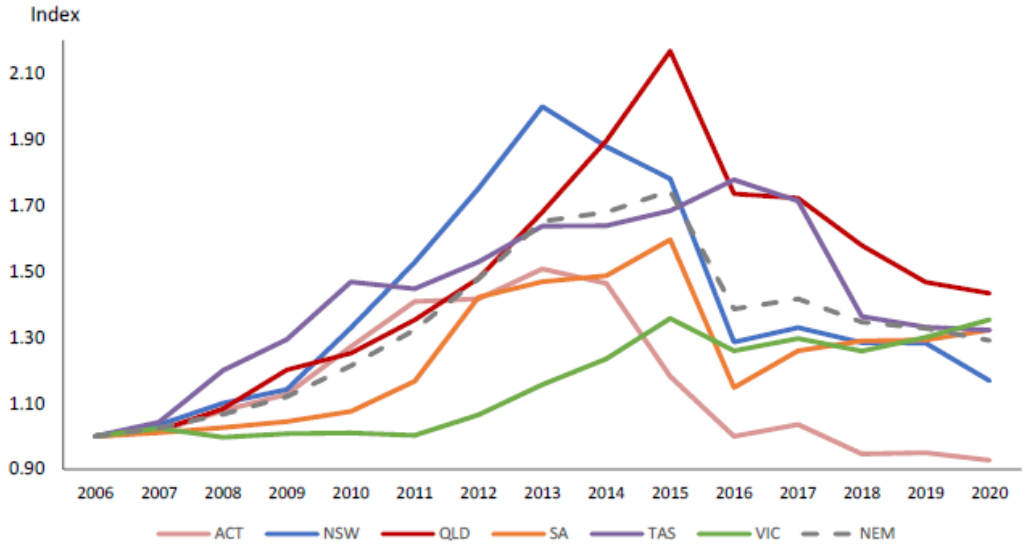


Source: AER 2021 transmission network service provider benchmarking report.

10.51 We note that the AER attributes some of the reductions in network costs and revenues to their use of economic benchmarking:[336]

> Since 2014, the AER has used benchmarking in various ways to inform our assessments of network expenditure proposals. Our economic benchmarking analysis has been one contributor to the reductions in network costs and revenues for DNSPs and the retail prices faced by consumers.
>
> Figure 4 shows that distribution network revenues (and consequently network charges paid by consumers) have fallen in all jurisdictions in the NEM since 2015. This reversed the increase seen across the NEM over 2007 to 2013, which contributed to the large increases in retail electricity prices.29 This highlights the potential impact on retail electricity charges of decreases in network revenues flowing from AER network revenue determinations, including those informed by benchmarking.

Figure 10.14 Indexes of distribution network revenues by jurisdiction, 2006-20



Source: Economic Benchmarking RIN: AER analysis

10.52 To recap, consumers are, on average, paying more for the similar measured quality of service. Of course, there will be variations between EDBs.

10.53 While productivity appears to have declined, this is not conclusive evidence that productive efficiency has worsened.

[336] AER "Annual Benchmarking Report: Electricity distribution network service providers" (November 2021), page 11.

10.53.1 Costs could have increased due to factors outside management control. For example, more stringent health and safety and traffic management regulations; resource consenting costs; climate change causing increased line damage and/or requiring greater investment to maintain resilience.[337]

10.53.2 The level of expenditure at the start of the period analysed could have been unsustainably low (ie, historic underinvestment) for maintaining the starting level of quality (ie, since quality outcomes tend to lag investment) and security of supply, so suppliers have had to play catch-up (eg, reversing Transpower's glide path strategy in the late 90s and early 2000s). Alternatively, increased expenditure may reflect expected cyclical renewal spend needed to maintain existing quality levels.

10.53.3 The quality that consumers receive could have improved (eg, customer service) and/or the outputs that suppliers deliver could have increased (eg, allowing more DER to be connected, greater security of supply, EDBs taking greater responsibility for consumer connection lines), but this has not been captured in the existing quality or output metrics.

10.54 Alternatively, it may be that EDB costs are increasing, but they are facilitating a reduction in other costs, potentially resulting in a net cost reduction for consumers (eg reduced gas use, lower energy costs using solar PV, lower transport costs through enabling EVs?).

10.55 However, it is also possible that increased spending may not have been as efficient as it could have been.

10.56 To conclude, while we have not recently conducted a detailed study of the efficiency performance of EDBs, the wider evidence before us indicates that they may have become less productive, whereas Transpower's productivity appears broadly stable. The evidence also suggests that this decline in productivity cannot necessarily be attributed to common drivers affecting comparable sectors in New Zealand, or the same sectors in relevant overseas markets.

10.57 Furthermore, as discussed in the innovation section later in this attachment, dynamic efficiency may have worsened, given that productivity and the measured quality of service have worsened and remained stable since 2002 and 2008 respectively.

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[337] We note that in the context of the ongoing gas DPP reset, Vector submitted that "EDBs attributed the overriding feature for the change in opex productivity (for EDBs) was heightened compliance requirements". See: Commerce Commission "Gas DPP3 - Draft DPPs for gas pipeline businesses from 1 October 2022 - Draft reasons paper" (10 February 2022), page 99.

10.58 If our high-level assessment is correct, it suggests that incentives on suppliers to improve efficiency is a potential issue to explore and assess in the IM Review. We question—and would like to better understand—the role that efficiency performance has played in driving these significant cost increases and the scope for improving incentives for performance. We have in the past highlighted that gaining a greater understanding of the drivers behind certain EDB costs (eg, non-network opex) as an area of future work.[338]

Innovation activity exists, but it has not yet clearly resulted in improved consumer outcomes

10.59 In 2018, we explicitly gathered information from EDBs to develop a better understanding of what emerging technologies EDBs were investing in, what effect emerging technologies were having on the sector, and how emerging technology investments were being accounted for within the Part 4 regime.[339] This gave us a better understanding of the level and nature of activity up to that point in this innovation-related area.

10.60 In late 2019 we noted the evidence suggesting that the level of innovation by EDBs was then insufficient to realise all the potential benefits it could deliver, although the evidence was not completely clear and did not relate solely to EDBs.[340] We noted that:[341]

10.60.1 Only 7% of energy sector businesses were conducting research and development, which was much less than other sectors.

10.60.2 Energy sector expenditure on research and development decreased between 2007 and 2016.

10.60.3 In 2018, EDBs reported a total of less than $10m expenditure on research and development. The 2021 value has roughly halved to $4.7m.[342]

10.60.4 New Zealand businesses focused solely on domestic markets are less likely to innovate and any innovation results in lower relative levels of productivity improvement.

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338 Commerce Commission "Trends in local lines company performance" (17 December 2020), page 32.

339 Commerce Commission “Impacts of emerging technologies in monopoly parts of electricity sector” webpage (2018).

340 Commerce Commission "Default price-quality paths for electricity distribution businesses from 1 April 2020 – Final decision: Reasons paper" (27 November 2019), pages 80, 81.

341 Commerce Commission "Default price-quality paths for electricity distribution businesses from 1 April 2020 – Final decision: Reasons paper" (27 November 2019).

342 See Commerce Commission "Information disclosed by electricity distributors" (2022) webpage: information disclosure database. This figure includes expenditure on “Research and development” and “Energy efficiency and demand side management, reduction of energy losses”.

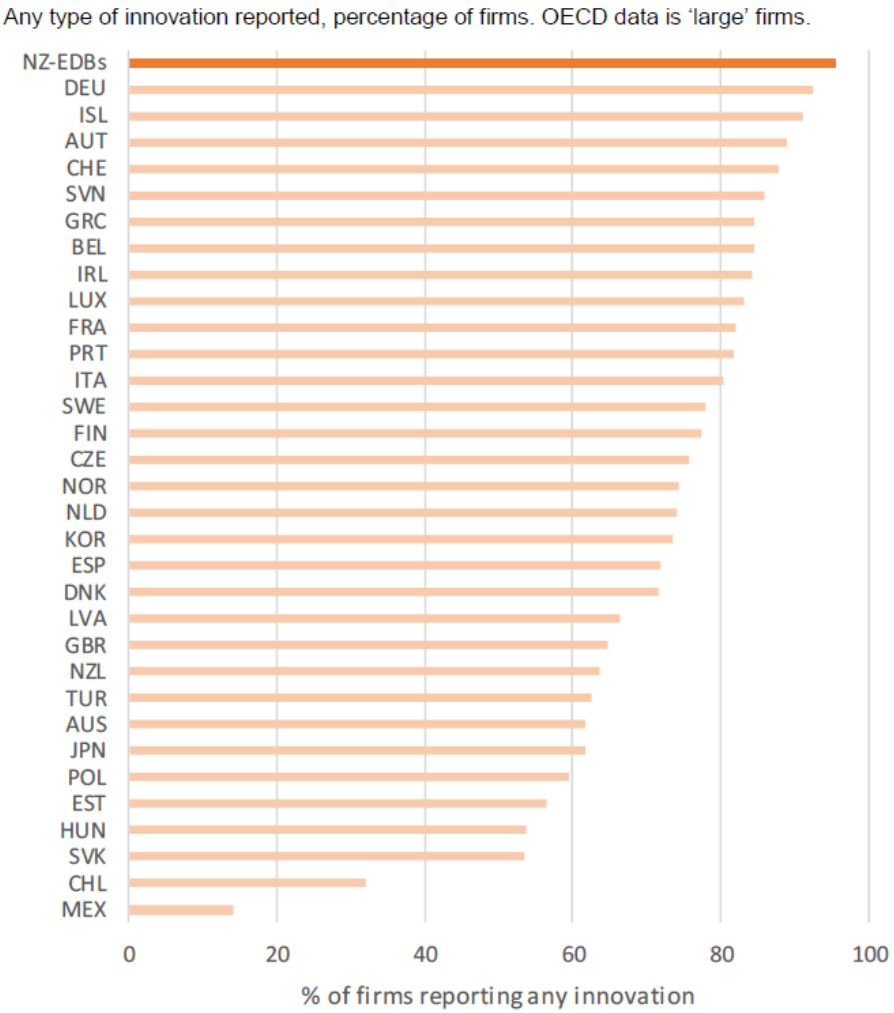
10.60.5 We saw several examples of beneficial innovative practices by distributors through our programme of distributor site visits and through the distributors' AMPs.

10.61 Therefore we considered that, while finding an optimal level of innovation expenditure was difficult, more incentives to promote innovation were likely needed beyond the ones already built into the regime. As a result, we introduced an innovation allowance as part of DPP3. We have had some engagement with EDBs on possible proposals for innovation funding, but have not received any formal application to date.

10.62 In 2019, the EA reviewed EDBs' capacity to respond to changing technology. They found that EDBs reported "higher rates of innovation than other businesses in New Zealand and internationally. Distributors report innovation at around three times the rate of all other firms and twice the rate of large firms in New Zealand."[343]

[343] Electricity Authority "Review of distributor's capacity to respond to changing technology - Market performance review" (16 April 2019), page iii

Figure 10.15 EDB self-reported rates of innovation compared to OECD surveys



Source: Electricity Authority "Review of distributor's capacity to respond to changing technology - Market performance review" (16 April 2019), page 50.

10.63 The EA reported that the "[h]igh rates of innovation-related activity amongst distributors, including R&D, relative to other businesses in New Zealand and overseas, cannot be readily explained by the data we have."[344] Our data on EDB R&D expenditure—a precursor to innovation—also suggests low and falling levels.

10.64 The EA concluded that "at a minimum, we find no evidence of a deficit of innovation activity compared to other firms or industries."[345]

[344] Electricity Authority "Review of distributor's capacity to respond to changing technology - Market performance review" (16 April 2019), page 49.

[345] Electricity Authority "Review of distributor's capacity to respond to changing technology - Market performance review" (16 April 2019), page 49.

10.65 More recently, in our 2021 review of asset management plans in the context of readiness for decarbonisation, we noted that many EDBs are trialling new technologies, actively seeking third party DER solutions, embedding a focus on understanding emerging technologies and identifying future network capacity constraints.[346] So there appears to be increasing levels of innovation activity happening.

10.66 However, the above evidence broadly relates to inputs to innovation (eg, expenditure) or outputs (eg, a sense for activity levels (including self-reported ones), number and type of trials, technologies installed, etc). It is more difficult to get a sense of the outcomes from this innovation-related activity.

10.67 Outcomes are what ultimately matters for consumers.

10.68 One way to approach the question of the impact on outcomes is by referring back to the concept of dynamic efficiency. This can inform our view of the extent to which the level and nature of innovation since 2008 has promoted the section 52A purpose of Part 4.

10.69 Recall that dynamic efficiency refers to decisions made over time and includes decisions relating to investment and/or innovation that can improve productivity as well as the range and quality of services. We have established that:

10.69.1 The measured quality of service has been broadly stable since 2008;

10.69.2 The level of investment has increased significantly since 2008; and

10.69.3 EDBs as a whole have been getting less productive by some measures since 2002, to the extent that we can rely on the existing evidence.

10.70 Bringing those three facts together suggests a hypothesis that innovation—to the extent that it has occurred—has not (or not yet) evidently contributed to improving dynamic efficiency, and therefore, has not evidently promoted the section 52A purpose of Part 4.

10.71 An alternative hypothesis might be that innovation has actually promoted dynamic efficiency to some extent, but instead investment has detracted from it more than innovation has promoted it (ie, investment on the whole would have been inefficient).

[346] Commerce Commission "Review of electricity Distribution Businesses' 2021 Asset Management Plans in relation to decarbonisation: Summary paper" (18 November 2021), page 5.

10.72 There is a third hypothesis – that the evidence we have on productivity as well as the range and quality of services cannot be given too much weight (eg, the measured quality misses important dimensions that consumers value, or we are missing outputs that ELBs deliver), and therefore we cannot confidently take a view on the efficiency or innovation performance of EDBs.

Profitability across the industry has been below estimates of reasonable returns

10.73 Collectively, local lines companies earned $775m in regulatory profit after tax in 2020. The trend in profits was relatively flat between 2008 and 2020.

Figure 10.16 Total regulatory profit after tax for all local lines companies

Source: Commerce Commission, Trends in local lines company performance, 2020.

10.74 Profitability can also be expressed in terms of return on investment (ie, ROI), which can be compared to the return on capital we use to set price-quality paths (ie, the weighted average cost of capital or WACC). The figure below shows the ROI for local lines companies.

Figure 10.17 Weighted average return on investment, 2013-2020

Source: Commerce Commission, Trends in local lines company performance, 2020.

10.75 Our estimate for the WACC was 7.8% for 2011-2015 and 6.4% for 2016-2020. As shown, the industry returns tended to be lower than these levels, suggesting that local lines companies were not making excess returns. [347]

10.76 These profitability outcomes are consistent with weak or negative productivity growth (ie, costs growing more than revenues), but also with voluntary undercharging (ie, regardless of costs, undercharging results in lower revenue.

10.77 To conclude, our overview and assessment of ELBs' performance and market outcomes suggests that the regime provides ELBs with sufficient incentives to invest and maintain quality.[348] It has also been effective in limiting excessive profits. However, our assessment raises questions on the extent to which incentives on suppliers to innovate and improve efficiency to date have been effective. In particular, we would like to understand the role that efficiency performance has played in driving the significant cost increases we have observed.

[347] These are post-tax nominal WACC estimates unadjusted for changes in CPI. For 2010 to 2015 we used the 75th percentile of our estimate, while for 2016 to 2020 we used the 67th percentile. The appropriate benchmark to compare achieved post-tax returns against is the post-tax nominal WACC adjusted for differences between expected and actual CPI. The adjusted and unadjusted benchmark WACCs for the relevant periods are similar enough, such that the conclusion that profitability tended to be lower than these levels holds.

[348] Note that this is not necessarily the same as providing services at a quality that reflects consumer demands.